PLAYING WITH FIRE:

THE PRIMARY CAREGIVER'S PERSPECTIVE

OF CHILDREN AND FIRE.

A thesis

submitted in partial fulfilment

of the requirements for the Degree

of

Master of Arts in Psychology

in the

University of Canterbury

by

Coralanne Child nee Jones

University of Canterbury, 2001

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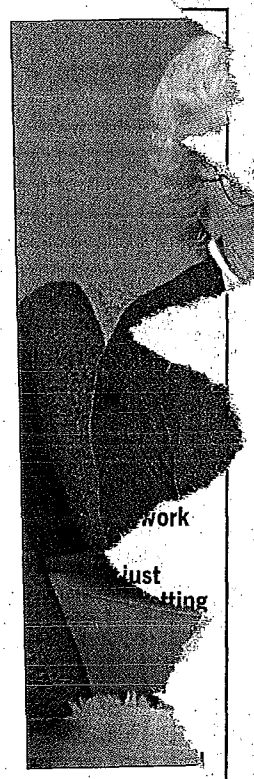

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Early last century, Halloween pranks amounted to manoeuvring a Ford Model T car onto a garage, and other high jinx, Dr Wilcox said.

Later, it became more domesticated and tricksters would soap stingy neighbours' windows.

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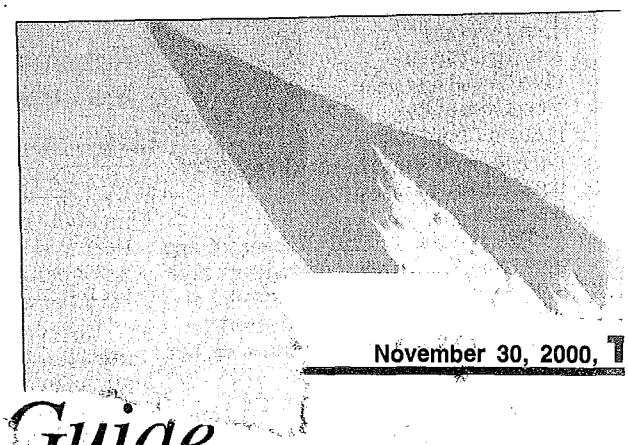

November 30, 2000,

Home & Home Guide

Curious kids set fires which cause tragedy

Every day New Zealanders experience the tragedy of fire. Each year property is destroyed and people hurt in fires caused by children playing with fire. As often as not the victims are the children themselves.

Children under five are curious about fire. Often what begins as a natural exploration of the unknown can lead to tragedy. Children make up between 20% and 25% of all fire deaths.

Over 30% of the fires that kill children are set by children playing with fire.

Too often, child firesetters are not given proper guidance and supervision by parents and teachers. Consequently, they repeat their firesetting behaviour.

Practise fire safety in your home. Supervise young children closely. Do not leave them alone even for short periods.

Keep matches and lighters out of reach and sight of children.

Have a fire escape plan and practise it with your family.

Choose a safe meeting place outside your home.

Teach children to stay away from fire.

Teach children to get out of the house and stay out if there is a fire. Children should not stop to get clothes or toys, or to call the fire brigade. They should not hide from firefighters, but get out quickly and call for help from somewhere nearby.

Show children how to crawl low on the floor, below the smoke, to get out of the house — and stay out — in the case of fire.

Demonstrate how to stop, drop to the ground and roll if clothes catch fire.

Install smoke alarms on every level in your home, and familiarise the children with the sound of your smoke alarm.

Test the smoke alarm each month and replace the battery at least once a year. Replace the alarm every 10 years, or as recommended by the manufacturer.

Having a working smoke alarm dramatically increases your chances of surviving a fire.

Fire victims

Police have named two people killed in separate fires in the city recently.

Zindy Ria Ruki-Staples, 6, died last weekend from injuries resulting from a car fire in Shirley in on December 27. She died in Southland Hospital, after being treated at Christchurch and Middlemore Hospitals for burns to 80 percent of her body.

It is believed a metal cigarette lighter started the fire in the vehicle. The matter may be referred to the coroner

The woman who died in a garage fire in Opawa last week was Jenyse Helene Wynyard, 27, of Christchurch.

Her death has been referred to the coroner.

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Sergeant Lindsay Turner, of t
communications centre, said p
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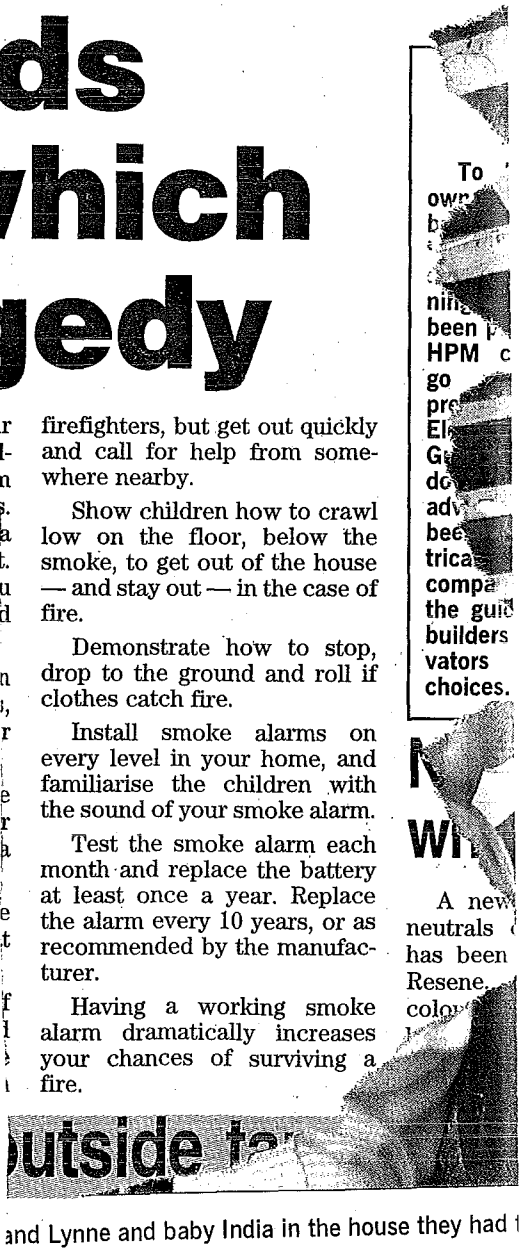
"These kids are wandering from house to house without supervision and their actions have put property and lives at risk."

A spokeswoman for the police northern communications centre said Halloween had passed without incident in the greater Auckland area.

In Queenstown, the mall was packed with more than 300 tiny witches, goblins, ghosts, and ghouls. They were part of an event to raise funds for the new Queenstown Toy Library.



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by Christine Rush

A Burwood family is living in a motel until Christmas after youths playing with fireworks allegedly set their roof on fire.

Lynne and Denis, who did not want their surname used, for security reasons, just had time to grab their baby, India, and get out before a blaze tore through the roof of their home on Friday.

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Abstract.

Fireplay and firesetting by children is a dangerous act that may result in grave consequences, including damage to property, injury to self and others, and even death. The number of participants were made up of two groups that combined totalled 250 primary caregivers of children (142 male and 108 female) aged between three and fourteen years of age. The first group consisted of two hundred caregivers with children attending Early Childhood centres, primary or intermediate schools within the metropolitan city of Christchurch, New Zealand. Caregivers completed a questionnaire on children's behaviour and fire. The second group consisted of fifty primary caregivers with children who had been referred to the Transalpine Fire Safety Youth Liaison Officer for fireplay and or firesetting behaviour. Content analysis of existing written caregivers interview records with Fire Safety Youth Liaison Officers were analysed. The study identified and made comparisons between groups defined as non- fireplay or firesetters, fireplay and firesetters. Findings suggest that characteristics that may usefully differentiate between children who do or do not fireplay or fireset are: gender, family structure, caregivers that smoke cigarettes and extended family members having deliberately lit fires. Characteristics that may not be as useful in differentiating are: age, ethnicity and caregivers awareness of fire education programmes. Children who fireplay or fire set are by no means a single group with a single motivation. Fireplay and firesetting is a complex picture of diverse and overlapping behaviours, characteristics and motives.

Since the beginning of life, fire has been both feared and respected as one of nature's most powerful forces. For many thousands of generations humankind both directly and indirectly, has had the commonality for - fire, the use of fire, need for fuel and living in conditions where fire has contributed to their continued existence and propagation. Fire has served many purposes and the ability to handle fire has been a universal human attainment, found in every known society. Thus, fire has been and remains an integral part of human life today. To an even greater extent than either language or the use of tools, fire has been and is exclusively human. Rudimentary forms of language and tool use has been found among non-human primates and other animals, but only humans have learned as part of their culture, to control fire. Charles Darwin noted in The Descent of Man that: "this discovery of fire, probably the greatest ever made by man, excepting language, dates from before the dawn of history" (as cited in Barrett & Freeman, 1989, p. 49).

The current estimated world population of 5 billion people, all continue to use fire in a multitude of ways. How they access and use fire may well be dependent on the society to which they belong and on their position within that society. Some may spend many hours a day collecting firewood and carrying it home, others with a flick of a switch may have enormous quantities of energy at their disposal. Goudsblom (1990) suggests that ever since man's original domestication of fire took place, control over fire has depended primarily on social organisation and cultural tradition. In each generation people have had to learn anew how to adjust to the presence of fire. They have had to regulate both their joint relations and their individual impulses and feelings in such a way as to ensure the regular possession and use of fire. This notion of technical mastery of fire, resting on social conditions has also been put forward by Catherine Perle (1977) in her writings about fire in prehistory. She suggests that the control of fire always involves social authority. For example, a child is first introduced not just to "fire" but to social fire" – fire surrounded by signals given by other people. As even the fear of fire, which may strike us as spontaneous and natural, has been preceded by social experiences from and with others, by warnings and prohibitions - messages to be cautious and to keep away from the fire. Perle's writing gives support to the earlier suggestion made by Bachelard (1964), that fire is to people 'more a social reality than a

natural reality'.

> The social prohibitions are the first. The natural experience comes only in the second place to furnish a material proof which is unexpected and hence to obscure to establish an item of objective knowledge. The burn, that is to say the natural inhibition, by confirming the social interdictions, thereby only gives all the more to the paternal intelligence in the child's eyes.
> (Bachelard, 1964, p. 11).

These highly perceptive comments made by Bachlard note the social and natural reality of events surrounding fire, however they do fail to address socio-cultural development and the relationship of culturally specific practices to both child development and fire behaviour. Vygotsky, the father of socio-cultural theory reported that children arrive at knowledge through actively participating in the world around them, and that one should expect highly variable development depending on the child's specific cultural experiences (Cole & Cole, 2001). This suggests that a focus for social scientists should be on how culture – the values, beliefs, customs and skills surrounding fire behaviour are transmitted to the next generation.

The prohibitions alluded to by Bachelard are the prohibitions issued by parents living in flammable cities, in flammable houses, filled with flammable belongings. They represent a rather recent stage in the development of the human fire regime. Where over time the transition from living with open fires to living with contained fire has made life in many ways easier and safer, it has also created new constraints and risks. The fire regime, that is the complex combination of socio-cultural commands and options with regard to fire, has without doubt changed over the course of time. Norbert Elias's classic study drew attention to a sentence from a fourteenth-century manner book: "Thingis somtyme allowed is now repreuid' – things that were once allowed are now forbidden (Elias, 1978, p. 82). This is evident within the historic fire regime, where the licence to burn has been severely checked, society has moved from gathering and hunting, from slash and burn, to settled agriculture and urban life. The behaviour surrounding fire is now more than ever before restrained and regulated.

As previously discussed our ancestors first encountered fire in the wild before they learned to make it themselves. Ironically, this same sequence is still repeated today, a child first sees burning, and only later does it learn to make fire. The fire that the child sees burning, however, is very rarely a 'wild' fire, most children make their first acquaintance with fire in a domesticated, controlled form, for example, home open fires, matches, lighters and birthday candles. Ever since the original domestication of fire, all successive generations have grown up in a group-with-fire. Being a member of that group implies that one has joined the fire regime - that is, acquiring the knowledge and skills needed to be able to handle fire and to act properly in its presence, and in accordance with the prevailing group norms. Clearly, in learning to control fire, individuals do not have to repeat within their own personal history the entire process of socio-cultural development. On the contrary, they have to adapt to the level at which society finds itself during their lifetime. Thus in the last decade of the twentieth century children do not need to learn how to make fire with wooden implements or flints, most of them do not even need to acquire the skill of keeping a coal stove burning. Children in a modern society have experiences with fire, and have to learn skills and habits with regard to fire, which is different from those of children growing up in a society without matches or lighters, but in which fire was commensurately less dangerous. The social norms prevailing in any group, at any given time, are themselves the result of historical processes. For example, today a child growing up in a city with any impulse to start large fires has to learn to suppress that impulse. Had the child been born in the previous century, setting fire to land was not only allowed it was actively encouraged, as it had positively valued functions. Clearly, time has altered the way that fire is perceived and what would have been considered normal and useful in a gathering and hunting economy, may well now be considered pathological and criminal.

Until recently, as soon as children started to move around there was a strong possibility that in most communities they would come in contact with fire. Anthropologist Jane Goodale describes how among the Tiwi of Melville Island in North Australia, a couple of small girls aged about two and three years were left alone near a small fire, while their mothers were away on a yam digging expedition. After a while, the children decided to build their own fire:

> They gathered a small heap of grass, collected a glowing stick from their mothers' fire, and carried it to the heap of grass. They held the glowing stick to the grass and then, lying on their stomachs, blew gently till a flame appeared. Then they scurried about trying to find enough small twigs to feed the fire, but it died out.
> (Goodale, 1971, p. 34).

Jane Goodale reported that she never heard Tiwi parents forbidding their children to play with fire, nor even cautioning them to be careful. Apparently the saying 'experience is the best teacher' was rigidly followed. In contrast to the Tiwi children, most small children growing up in a modern urban environment are less likely to come into contact with an open fire. But in many households they may soon find within their reach matches, lighters or other means of starting a fire. At that point it is imperative that they learn to handle very cautiously the tools of fire, to avoid either burning them or causing injury to others or damage to property. The ease with which a match or lighter can be lit bears no relation to the destructive potential of the fire thus started. Learning to handle matches is therefore an integral part of the individual civilising process in a modern society. Although this may be so, like society at large fire has become highly specialised, and most of its functions are performed 'behind the scenes' in industrial and commercial areas. Consequently, for many people, children and adults alike, exposure to actually burning fire may be confined to special occasions at which candles or a wood fire are lit for decorative or ceremonial purposes. Thus, regular everyday use of fire is becoming increasingly rare. One of the few forms in which fire continues to be evident is matches and lighters, and the main reason for this is smoking. The gradual elimination of fire from everyday life has led to a contradictory trend, while the societal capacity to control fire has been increasing spectacularly, the average individual competence in handling fire is probably waning. In modern urban society reality requires that people do not cause fires. This is clearly in the common interest of all persons. Everywhere, by virtue of possessions, people are hostages to fire. They have therefore every reason to fear and condemn fireplay, firesetting and arson in any form. What is feared in particular is a persistent tendency towards incendiarism, widely known as 'pyromania'. Even though psychiatrists have come to doubt the usefulness of

that term, it continues to be popular (Joseph, 1960). The opposite 'pyrophobia', has never caught on, although the psychiatric literature does contain sporadic references to 'phobic aversion to fire' (Joseph, 1960, p.102). If a person displays symptoms of excessive fear of fire, these are far less likely to arouse concern than does proneness to arson.

As discussed earlier, throughout history fire has always played a central role and held a strong fascination with society's members. Perhaps none more so than with children. Is it that their innate curiosity and desire to learn about the world around them makes them especially attracted to fire and all its mystery? Why is it that some will enjoy the comforts of the flame at a distance and others are driven by intrigue and desire to partake in the setting of fires? The behaviour that surrounds children and fire is one worthy of further investigation.

The impetus for interest in this subject stems from several areas. Firstly, the conflicting claims for fireplay and firesetting behaviour in children that exists in the literature. Secondly, much of what is currently recorded about children's fireplay and firesetting behaviour is derived from reports of approximately 400 selected individuals, over a period of almost 50 years and from a very limited number of researchers. Thirdly, and most importantly, the recognition that child fireplay and firesetting does result in significant loss of life, injury and property damage, among other serious consequences for families and communities (Gibson, 1999).

As yet, educationalists and psychologists have paid little attention to this aspect of child behaviour – fireplay and firesetting. The subject of fire control is hardly ever mentioned in the textbooks on education, developmental psychology, cognitive psychology or social psychology. Apparently it is taken for granted – as it was taken for granted in our history – that children receive sufficient training in the use of fire from their parents or their peers. This however, is becoming increasingly questionable. There are several suggestions to why the issue of children fireplay and firesetting has gone largely unrecognised. The first is that records of child fireplay and firesetting in the main have not been well documented nor is there a central point at which incidents are recorded for national inter agency statistics. Therefore, little information has been compiled to

validate child fireplay and firesetting as a problem. Secondly, education, mental health and other professional counselling agencies fail to address fireplay and firesetting as a genuine problem. It is more likely to be recognised as a symptom of conduct disorder in the Diagnostic Statistical Manual-IV, rather than an actual psychiatric classification (Appendix A) (American Psychiatric Association, 1994). Further to this, parents often hesitate to seek help for their children because a child firesetting may reflect hidden difficulties that may be occurring elsewhere in the family structure. Finally, child fireplay and firesetting may well go unnoticed and unchecked because little is known, reported or offered as to why children set fires. That which have been studied and reported frequently comes from different perspectives and by multiple disciplines, which has resulted in separate literatures emerging within fire service, mental health, juvenile justice, and community organisations. Fireplay and firesetting is a problem well recognised by fire officials and researchers who study it. It is, as Hanson, MacKay-Soroks, Atkinson, Staley and Shauna & Poulton, (1994) remind us, "the leading cause of fire death among pre-school-aged children" in the United States. Researchers, fire service personnel and policy makers have emphasised that the consequences of fireplay and firesetting are significant in terms of loss of life, injury, and damage (Hollingworth, 1994; Gaynor, 1991; Fineman, 1980).

In general terms, the problem of fireplay and firesetting among children has been somewhat difficult to address because, while some of the consequences are fairly apparent, the matter of exactly who is engaging in fireplay and firesetting and why, has been far from apparent. No doubt part of the reason for this has been the fact that most studies to date have focussed on "firesetting" as opposed to fireplay (Grolnick, Cole, Laurenitis and Schwartzman, 1990). Further to this most studies of childhood firesetting have used psychiatric clinical samples in whom firesetting is rarely the main referring symptom (Harris & Rice, 1996). Alternatively, Kafry (1980) reported that in her study of boys (ages 5-9), "fire interest" was found to be almost universal and fireplay was performed by 45% of the boys studied" (p. 47). Eighty one per cent of the children who frequently played with matches had actually caused fires. Moreover, 18% of the fires were set before the age of three, suggesting that fire play and experience develop very early in life. Others have also reported that fire play and interest in fire is

apparent between the ages of 2 and 5 years (Kolko & Kazdin, 1995). This suggests that fireplay may become part of a child's behavioural repertoire at an extremely early age and may determine later attractiveness to fire-related themes, including adult firesetting. However, the generality of this claim for all firesetters is difficult to determine since early fireplay is not usually described.

As evidence has gathered regarding antecedents, correlates of firesetting, and characteristics of firesetters and their families, the findings and their conceptual bases remain somewhat diffuse (Kolko, 1985). Just as diffuse are the conceptual or theoretical models that have been proposed to account for the emergence of children and firesetting behaviour. Early interpsychic formulations drew heavily upon urethroerotic fixations assumed to underlie firesetting behaviour (Stekel, 1924). Firesetting was also conceived as a sign of libidinal excitement associated with the phallic-urethal stage of psychosexual development (Freud, 1932; Hamling, 1995). The primacy of the sexual underpinnings of firesetting gave way over time to an emphasis upon sexual-neurotic and aggressive drives (Kaufman, Heins & Reiser, 1961). In more recent years alternative models have stressed the role of firesetting within the framework of social learning theory. Bandura proposed that behaviour is learned and maintained through environmental experiences, either directly or vicariously, and that the learning of new behaviours is controlled by contingencies and punishment (Bandura, 1973). For instance fireplay may be acquired when a child attempts to light a match or lighter and is rewarded with a positive outcome, the flame and fire. However, new behaviours will also be avoided in the future if these behaviours are punished. Social learning theory, holds that new behaviours also may be acquired vicariously by watching an influential role model engage in an action. For children role models maybe a caregiver lighting a bonfire, fireman extinguishing a fire. Fineman (1980) purported firesetting to be an interaction involving historical factors that predispose a child toward antisocial behaviour (e.g., family problems). Combined with historical contingencies that teach a child to play with fire (e.g., imitation of parental involvement with fire, fire lighting and smoking), and immediate antecedent (e.g., stressful life events) and consequent events (e.g., curiosity, aggression). Finally Patterson (1982) proposed that firesetting occurs at the end of a chain of antisocial behaviours that

progresses from high-rate overt symptoms (e.g., disobedience) to low-rate covert symptoms (e.g., lying, stealing). Although these models have descriptive benefit and purposes, they have not provided the basis for empirical research on firesetting, nor have they explained why only small proportions of children who experience difficulties become firesetters.

The discussion that surrounds firesetting behaviour also requires an understanding of statutory rights, responsibilities and the legal implications toward children that fireplay and fireset. To date little information nationally or internationally has been noted or discussed within fireplay and firesetting literature. Within New Zealand the Department of Children, Youth and Family Services has statutory responsibilities as defined by the Children, Young Person's and their Families Act 1989, for children and young people whose family circumstances put them at risk of abuse and neglect, offending behaviours and poor life outcomes. The Act in 1989 introduced new principles and procedures for dealing with young people who offend against the law. Children (i.e. those aged under 14) and young people (i.e. those aged 14 to 16 inclusive) who offend are dealt with by the criminal justice service differently from older persons. Before 1989, children and young people were dealt with under the provisions of the Children and Young Person's Act 1974. The Children Young Persons and their Families Act 1989 refers to youth justice and indicates that "unless the public interest requires otherwise, criminal proceedings should not be instituted against a child or young person if there is an alternative means of dealing with the matter" (C.Y.P&F Act, 1989, s.208). The Children, Young Persons and their Families Act 1989, therefore, places an emphasis on diverting young people from formal prosecution processes in court. It should be noted that the legal age of criminal responsibility in New Zealand is 10 years of age, except for charges of murder and manslaughter no child between 10 and 13 years may undergo criminal proceedings (Brown, 1995). When a child aged 10 to 13 years does commit any other type of offence, offending will be dealt with under the Care and Protection provisions of the CYP&F Act 1989 (as opposed to the Youth Justice provisions). If the number, nature or magnitude of the offence(s) gives serious concern for the wellbeing of the child, Child, Youth and Family Services may well

provide intervention services and support. In summary, the legal requirements of the Act, have implications not only for prevalence and incident statistics but also for intervention and future outcomes.

It is important to this review of fireplay and firesetting, that the issues, characteristics, motives and intervention procedures that surround children's fireplay and firesetting behaviour are discussed within this study. However, literature pertaining to the behaviour could be best described as sparse and more of a historical account. During the last decade there has been a renewed interest in the behaviour, however this has primarily been amongst child and family units and fire services.

Participant Selection Issues

The literature represents heterogeneous groups where the primary inclusion criterion entails the lighting of at least one unsanctioned fire that either produced or threatened to produce injury or damage. The general absence of any clearly defined definition of firesetting in the literature is widely reflected across studies in firesetting frequency, intensity, and related consequences. For example, Yarnell's (1940) classic report involved the child who merely showed "firesetting tendencies" (p. 273). Where as Kaufman et al (1961) included the child who set "single or multiple fires which went beyond the child's control and caused serious damage to property or injury to persons, or both" (p.124). Surrey Fire Service (1994) defines juvenile firesetting as "any unsanctioned, non-instrumental use of fire by any person seventeen years of age or younger" (p. 1). Stewart & Culver (1982) and Strachan (1981) suggested that juvenile firesetters were those children who had set at least one fire, regardless of motive or who had set a fire that had consumed property. This appears to be more representative of participants within the literature. However, the majority of studies failed to describe what constituted firesetting activity, often falling some where in between the former extremes. Unfortunately, these studies may obscure potential distinctions between children who engage in simple match or fireplay and those who set fires that produce property damage. The lack of consistent use of operational definitions raises issues for

consistency, and the comparison, understanding and proper communication of ideas about the problem of juvenile fireplay and firesetting.

Of comparable significance is the general source of the participant samples. From 1940 to 1980, most studies on children firesetting were based essentially on surveys of convenience (Raines & Foy, 1994). Very few studies used control groups and standardised research methods to produce reliable and valid results. It is not surprising then that conclusions have often been contradictory and comparisons between groups extremely difficult. Further to these issues, fireplay and firesetting is frequently not the primary reason for children's referrals to mental health, child and family services and seeking assistance. Vandersall and Weiner (1970) reported that most of the children they studied were referred for problems other than firesetting, and firesetting most often emerged as only another symptom among other indications of poor impulse control and a more generalised behavioural disturbance. Other reasons for the referral have included stealing, absconding, hyperkinesis, academic underachievement and violent behaviours (Boling & Brotman, 1975).

With fireplay and firesetting behaviours not being the behaviour of significant psychological concern for assessment and intervention referrals, there may be a stronger emphasis toward addressing behaviours other than firesetting. Referrals may also be made to outpatient services rather then directly to fire services or firesetting behaviour may only be addressed peripherally and go untreated. In most cases, referral source is not described, however, reported sources have included inpatient psychiatric units, residential treatment units, outpatient psychiatric clinics, mental health clinics, the courts and children's hospital burns units. There are also some instances of fire and insurance records being surveyed. Studies that are confined to such clinical populations can exaggerate co-morbidity and may have their own particular biases. Study findings may also vary with regard to the type of setting or service, which refers, supports and/or studies firesetting children, a potential cause of participant sample differences. Such factors potentially obscure the significance of fireplay and firesetting behaviour as a clinical problem and they are also potential sources of participant bias and differences, which may limit the generality of the findings reported. Clearly, adequate descriptions of inclusion criteria, referral sources, settings in which participants are studied, and

other factors affecting the participant selection process must be included in future studies to permit the drawing of accurate conclusions, incidence and prevalence rates about children who play with and set fires.

Sample Incidence and Prevalence

The real hazards of children playing with fire are clearly indicated by statistics. One of the earliest reported incident rates of 2.3% (20 cases) was based on a total of 860 children referred for outpatient evaluations, in contrast other studies reported incidence rates of 12% and 15% (Heath, Hardesty, Goldfine & Walker, 1983). A published non-clinical account of incidence reported that more than 80% of the participants reported an interest in fire and 45% had been involved in actual fireplay, with 18% of the fires reported to have been set by children under three years of age (Kafry, 1980). This early interest in and experience with firesetting has also been reported by other studies (Block, Block & Folkman, 1976). Moreover, surveys of the general population repeatedly indicate that as many as one-third of all children engage in fireplay and that children consistently underestimate the danger of such activity (Kafry, 1980; Grolnick et al,1990). Further studies of firesetting by children in the general community have yielded variable results of 3 to 45% (Adler, Nunn, Northam, Lebnan and Foss, 1994). The New Zealand Fire Service, Fire Awareness Intervention Programe (2000) reports that the fire service total for national incidents of firesetting by children is 731 (Appendix B), with the Transalpine Fire Region incidents accounting for 253 of the national total. Statistics from the South Australian Metropolitan Fire Service report that from June 1992 to 1996 the fire service had attended at least 490 fires which had been attributed to children playing or experimenting with fire. A number of these fires had also resulted in children being seriously injured or killed (Bahr, 1997). American statistics paint a similar picture, where each year more than 4,000 Americans die in fires and more than 25,000 are injured. Of this total children are attributed to having set fires, in which approximately 300 people have been killed and $280 million in property has been destroyed (United States Fire Administration, 1999). In general, there are discrepancies in the incidence rates reported by studies, such as failure to report fireplay and firesetting when other inappropriate behaviours occur,

operation of different referral systems and services for children of different ages. Not only have there been few large-scale studies, but also incidence reports by parents of 'normal' children may underestimate the number of firesetters and incidents due to the concealed nature of the behaviour. Kafry (1980) reported that children with no contact with mental health or child and family units obtained the highest incidence of firesetting. Further to this Kafry suggests that fireplay and firesetting may well be a passing concomitant of childhood and, thus is not necessarily evidence of emotional and physiological disturbance (1980). The fact remains however that fireplay and firesetting occurs among normal children and those with challenging behaviours. A fact that not only highlights the need for further study but also emphasises the importance of including non-clinical samples in future studies.

Internationally variations occur within incidence and prevalence rates and the same could be said of New Zealand, where similar variations occur in the level and nature of crime reported throughout the country. This variation can be due to a number of factors such as the urban and rural make-up of an area, and the demographic and socio-economic characteristics of populations in different parts of the country. The Crime and Offence statistics published as an Appendix to the Annual Report of the New Zealand Police is a main source of information as to the amount and type of offending present in New Zealand. However, the total number of property offences listed is not an accurate record, nor even an approximation of the total amount of offending against property in the community. There are several reasons why this is so, two of which are the willingness or ability of the victim to report the offence and thirdly police discretion in taking official action when an offence is observed with youth. It must be noted that the introduction of the Children, Young Persons and their Families Act 1989, with its emphasis on diverting youth from formal prosecution processes in court, has had a significant effect on the total number of cases involving young people which come before the court system. The introduction of the Act has resulted in a large drop in the total number of cases involving young persons, where number of cases are reported to have dropped sharply from 8,193 in early 1989 to 2,352 in 1990 (Statistics New Zealand, 1996).

A second source of national data is the New Zealand Fire Service Fire Incident Reporting System (F.I.R.S), which identifies the fire incident rate caused by juveniles to be 1273 calls, 7% of the national total of 16,705 calls (New Zealand Fire Service, 1996). These figures equate to the reported international trends involving children, however caution must be noted when interpreting the national fire statistics. As the Fire Service report that those identified by fire departments is only a small subgroup of children who engage in fireplay or firesetting and does not reflect all incidents. It is important to recognise that different source of data and data collection methods will provide different indications of the level of fire behaviour. General community surveys, which ask people if they have experienced children and fireplay behaviour would generally provide higher figures than those, would reveal by Fire Service, Police and court statistics. This is due to surveys capturing incidents that are not reported to the authorities because people consider the behaviour too trivial or believe there is little that can be done. Police statistics do capture a number of crimes which are "victimless", such as property damage, but at the same time they fail to record crime which is not reported to, or detected by, the Police. Figures for convictions within the criminal justice system will give a lower indication of offending than Police statistics because many of the offences reported to the Police do not lead to successful convictions. In addition to the difficulties of measuring the level of offending, official statistics may not provide an accurate picture of fireplay and firesetting behaviour. Generally, offences in the public domain are more likely to come to the attention of Police than those occurring in private, such as fireplay and firesetting.

In summary, there are discrepancies in the incidence rates reported in studies and this may be due to several factors, such as failure to report firesetting when other inappropriate behaviours occur and the operation of different referral sources or services for juveniles of different ages. Not only have few large-scale studies been conducted, but also incidence rates have been based upon reports by parents of normal children, who may underestimate the number of young firesetters due to the concealed nature of such activity. The result may well be incidents of younger children fireplaying and firesetting may not enter into official fire statistics.

Risk and Demographic Characteristics

Risk factors are those correlates of fireplay and firesetting behaviour that precede the occurrence of the behaviour of interest e.g. gender. Risk factors not only precede and correlate with the behaviour of interest, but they also have been shown to have a causal relationship to the behaviour (i.e., their removal or reduction will reduce the likelihood or intensity of the behaviour). Risk factors are useful because they inform methods for identifying individuals appropriate for special programming before the maladaptive behaviour is exhibited. Risk factors that predict increased likelihood of fireplay and firesetting behaviour have been identified as gender, age of child and socio-economic status. Although data exist regarding individual features associated with a higher risk of fireplay and firesetting behaviour, surprisingly little is known about how each feature operates.

Gender

A large and growing body of research suggests that there are some behavioural differences between young boys and girls, but they are relatively small, particularly in light of the wide variations of behaviour within each gender. Parents are advised to provide their children with a range of experiences beyond those that are gender stereotypical, as many of the behavioural differences between boys and girls are reported to be 'in the eye of the beholder' – gender stereotyped perceptions, rather than biological reasons. Although biological reasons may account for some sex differences, it is difficult to disentangle the effects of nature from nurture, both are likely to be involved (Cole & Cole, 2001). The firesetting literature consistently reports marked sex bias, with clearly the best-established risk factor for firesetting being male. Kolko, Kazdin and Meyer's (1985) report the average percentage of male firesetters for 22 studies was 82%. Showers and Pickrell (1987) reported that males accounted for 82% of the firesetters, whose average age was ten years. The New Zealand Fire Service, Juvenile Intervention Programme for the Transalpine Region (1999) reports that over a three month period there were a total of 75 children referred to the service with males being predominant (68). The National Juvenile Intervention Statistics 1999-2000 report states that there were a total of 766 children referred, with males being predominant

(681) (Appendix C). The Melbourne Fire and Emergency Services Board also report that 95% of participants in the Juvenile Fire Awareness and Intervention Program are male (2000). Gender bias was also evident in The City of Surrey Fire Safety Survey, which questioned participants about how confident they felt in regard to their personal fire safety. The survey suggests that males are more confident about their personal fire safety. It is interesting to note, though, that statistics indicate they are much more at risk than females. Males are reported to be more involved in fires than females and to have experienced over three times the fire related injuries that females do, and are five times as likely to die in fires (Bale, Sly, Jones & Jackson, 1997). Firesetting appears to be a male-dominated behaviour, however this has not always been the case. Lewis and Yarnell report that in the earliest literature, that is during the 18 and 19 century, firesetters were often servant girls who set fire to their master's house. It was generally assumed that they were suffering anxiety over menstruation, depression of puberty and separation from family (1951). Bourget and Bradford (1989) reported that in their study of firesetting, females make up 10 to 18% of the samples, and do not fall into any particular age group, consequently female firesetters have been studied less often.
The high representation of male firesetters is consistent with that noted for most manifestations of child psychopathology, which reflect greater percentages of males than females referred to mental health and child and family services, particularly for conduct disorders (Giordano & Cernkovich, 1997). The question must be asked however, does that reflect temperamental features or socio-cultural expectations? Hyperactivity, impulsivity and Conduct Disorder is also a well established risk factor for firesetting behaviour, but is this because it reflects a diagnostic category or because it constitutes a dimensional risk factor irrespective of diagnosis? Similar questions arise with respect to other individual risk characteristics, as little is known about the extent to which they involve risk and even less about their mode of operation.

Age

Studies report considerable variation in the age of juvenile firesetters, with large scale studies reporting that more than 70% of their samples were less than 10 years of age, others have reported children being as young as two, three and four years (Gruber,

Heck & Mintzer, 1981; Kafry, 1980). The New Zealand Fire Service, National Fire Awareness and Intervention Programme statistics (New Zealand Fire Service, 2000) report that the total for each age range of referred children was 74 for 0-5 year olds, 331 for 6-10 and 294 for 11-14 year olds (Appendix D). Similar to these findings is the Melbourne Fire and Emergency Service Board (2000) report, which identified the average age of a child firesetting as 7, and the children are reported as first showing an interest in fire at the age of 4 years. The Federal Emergency Management Agency (1978) reports very young children are attracted to fire – and to firesetting. With curiosity about fire being quite normal in two to seven years olds, as children show interest in lighting small fires or playing with matches lighters and candles. They also suggest that young children are imitating and mimicking the behaviour of adults who light cigarettes, candles and fireplaces rather than engaging in a malicious act. It is somewhat surprising that no studies have specifically considered the importance of cigarette smoking by parents as providing both a model of adult "fireplay" and more ready access to firesetting materials. A study by Lewis and Yarnell (1951) reviewed age and incident rates, they reported that children older than 10 years of age are more likely than younger children to have set more than 5 fires. They argue that the children may represent a recidivist subgroup that exhibits repeated firesetting or a group that displays delinquent behaviours, which results in contact with juvenile services and authorities. Consistent with this interpretation is the frequency of samples that were referred from juvenile courts, residential services and mental health services.

Socio-economic status

Few studies and details exist regarding the socio-economic status of families of firesetters. Heath et al, (1983) reported that firesetters were lower than non-firesetters in socio-economic status. Other large-scale studies have also reported a predominance of children from families falling into the lowest socio-economic range (Gruber et al, 1981; Kolko, 1983), although such a relationship was not found by Kolko et al (1985) nor Lowenstein (1989). Heath et al (1983) categorised families into socio-economic class based upon the last documented employment experience of the most recent male figure in the household and other studies have categorised families according to mental health

service referral data. Such methods and findings may be tempered by the fact that the majority of children from the lower socio-economic range are referred to services for a variety of conduct disorders, however the relationship between conduct disorders in general and social class could be best described as vague (Yung & Hammond, 1997). Reported study findings do not provide strong corroboration for a relationship between firesetting behaviour and socio-economic status.

Behaviour Correlates and Psychiatric Diagnosis

To date there has been a great deal of speculation regarding the behaviour and psychiatric diagnosis of children who fireplay or fireset, their caregivers and other domains of functioning. Research on the characteristics of children who engage in firesetting behaviours has suggested that they exhibit higher levels of psychiatric, multiple clinical or problem behaviours, than their non-firesetting peers. The most frequently documented behavioural correlate, has involved some form of fighting, assault or aggressive behaviour, which was noted for an average of 58% of children from three studies (Kolko et al, 1985). The New Zealand Fire Service, National Fire Awareness and Intervention Programme statistics (New Zealand Fire Service, 2000) also identified a range of anti-social behaviours for children that fireplay and fireset. The more significant behaviours included learning difficulties, Attention Deficit Hyperactivity Disorder and violence toward others and property (Appendix E). Kuhnley, Hendren and Quinlan (1982) also identified 58% of children who fireplay and fireset had failed one full year of school, presented with learning and school problems, learning disabilities, and were generally disruptive at school. A variety of related anti-social and delinquent behaviours have also been described. Kolko and Kazdin (1991) stated that:

> Social skill deficits were more characteristic of fire setters than non-firesetters. Relatedly, firesetters also were described as doing less well in school and showed less overall social competence. These parent-reported findings were corroborated by the children who acknowledged being less assertive (p. 199).

Running away from home or school, and property damage were also noted in studies with an average incidence rate of 28%, further to these findings stealing was reported in a number of studies with an average incidence of 46%. Other behavioural problems had also been described, which further broaden the clinical picture; hyperactivity, loner, temper-tantrums, enuresis, encopresis and the presence of sleep disturbance (Geller, 1992; Leone, 1992). Patterson (1982) proposed that there is a developmental trajectory for anti-social behaviour and that firesetting occurs at the end of the developmental sequence, indicating that it is an extreme form of such behaviour. Further to these findings the rendering of psychiatric diagnoses have been used in the classification of firesetting children. Kaufman et al (1961) reported that 37% of child firesetters had been diagnosed as psychotic and 27% had been diagnosed with conduct disorder. Kolko et al (1985) reported that children diagnosed with Conduct Disorder who set fires, were more extreme in their firesetting than their non firesetting peers. Stewart and Culver (1982) also reported a high incidence of Conduct Disorder in their sample at 78%, four percent of children were also diagnosed with Socialised Aggressive Conduct Disorder and 4% were diagnosed as having Attention Deficit Disorder. Gruber et al (1981) reported that 55% of the children were reported to be hyperactive, 62% were reported to have destroyed property and 29.2% were reported to have harmed other children. General findings reveal no predominant diagnosis or personality type associated with fireplay and firesetting, although more recent studies continue to highlight its relationship to Conduct Disorder. Diagnoses may implicate various behaviours correlated with firesetting, but do not conclusively elucidate the aetiology or significance of fireplay and firesetting behaviour. Sampling and selection biases, diversity or absence of diagnostic criteria, and lack of control groups further complicate interpretation of the findings.

Parental Pathology, Family Background and Atmosphere

Research on the characteristics of children who fireplay and fireset has been broadened to include parent and family correlates of firesetting. Over a period of time the findings have implicated a number of parent and family variables associated with fireplay and firesetting behaviour. Kazdin & Kolko (1986) have integrated these into a risk-factor

model. The following four factors have been identified: (a) parental un-involvement, (b) poor supervision, (c) parental pathology and (d) stressful events.

The family profile of firesetters appears to reflect considerable dysfunction and chaos, with parental psychological problems having been more frequently described among case or descriptive studies of psychologically disturbed firesetters. The specific forms have been diverse, including schizophrenic or psychotic disorders, depression and antisocial behaviour (Bumpass, Fagelman & Brix, 1983; Fine & Louie, 1979). Vreeland and Waller (1980) suggested that in families of firesetters, children, their mothers and siblings demonstrated higher rates of aversive behaviours and their fathers showed less inter-action than in families of non-firesetting children. Kolko and Kazdin (1990) also reported that family interactions are dysfunctional, with firesetters, their mothers and siblings exhibiting higher levels of negative behaviours than non-firesetters. The clinical significance of family and parental dysfunction suggests that pathology and discord may reduce the likelihood that parents and family members serve as effective role models. Alternatively, disordered family members may be less involved with family, display less affection and engage in coercive behaviours that promote firesetting. Frequently studies report that relationships were best described as unaffectionate, negative and conflictual (Siegelman & Folkman, 1971) with excessively harsh disciplinary practices, most notably physical abuse (Gruber et al, 1981; Jayaprakash, Jung & Panitch, 1984).

Studies have also explored the links between family instability, and frequent isolation or prolonged absences from parents, especially fathers (Fine & Louie, 1979; Stewart & Culver, 1982), with reports of children experiencing parental abandonment. Gruber et al (1981) report that 35% of the children had experienced abandonment by either or both parents at some time. It was also noted that fathers of children residing in residential treatment programs for firesetting behaviour were twice as unwilling to have their institutionalised child return to the family home than mothers (21% vs. 10%). Single parent families have also received some attention, with a higher proportion of firesetters to non-firesetters being found to reside in single parent families. The Melbourne Fire and Emergency Services Board reported that 54% of children fire lighting are from single parent families (2000). In contrast to these findings no

differences were reported in other studies (Strachan, 1981; Heath et al, 1983). The New Zealand Fire Service, National Fire Awareness and Intervention Programme statistics (New Zealand Fire Service, 2000) reported that a higher proportion of children referred for firesetting behaviour resided with both parents. From a national total of 765 children 304 resided with both parents, 231 children were residing with single parents and 88 children lived in an environment that included a parent and their partner (Appendix F).

Sakheim and Osborne (1986) argue that a child whose family background includes such chaos and rejection may result in the child feeling unloved, unwanted or emotionally deprived, or a child who has suffered parental abuse or abandonment is likely to develop intense anger and resentment of parents and adult figures. An examination of the interplay between parent and family variables is certainly needed if the psychological significance and course of this unique behaviour is to be understood. In summation, parents of firesetters report greater psychological distress, marital maladjustment, and fewer acceptances of their children than non-firesetters. The clinical significance of family and parental dysfunction in the families of firesetters suggests that pathology and discord may reduce the likelihood that parents and family members serve as effective role models. Alternatively, disordered family members may be less involved with family, display less affection and engage in coercive behaviours that promote firesetting.

Assessment of Firesetting Behaviour

The assessment of children's firesetting behaviours requires a profile and history to be ascertained, as information about the firesetting mechanisms and the ecological context of the firesetting may help determine its causes. Given the perceived low rate of fireplay and firesetting but the obvious seriousness of the behaviour, therapists have been more concerned with the psychological characteristics of the child rather than the behavioural parameters of the incident. As a consequence little is known about the situational determinants.

In addressing the need to describe and or define firesetting behaviour, studies have reported the number of fires that children have started. Strachan (1981) reported single

incident firesetting for 92% of one sample. In contrast, Kafry (1980) reported that single incidents of fireplay resulted in fires in 33% of cases and repeated fireplay caused fires in 81%. The Melbourne Fire and Emergency Service Board (2000) report that the average number of fires for all age groups attending their Fire Awareness and Intervention Programme is 12.5. The majority of studies do report multiple-incident firesetting with significant percentages of children setting more than five fires (Bumpass et al, 1983; Jacobson, 1985; Stewart & Culver, 1982). These findings generally concluded that children who set one fire are likely to set more. Clearly, greater attention should be paid to the frequency of previous fireplay and firesetting incidents.

Of considerable personal as well as public interest is a site damaged by fire, even more so when the act is reported to be deliberate. Although the sites of firesetting are reported to vary considerably, residential fires are the most commonly reported. Strachan (1981) reported that approximately 48% of fires occurred in and around the home, with 36% of fires occurring in community locations, for example, schools, neighbouring property, commercial buildings and cars. Lewis and Yarnell (1951) described a relationship between the age of the child and the particular site of the fire, with 6-8 year olds tending to light fires at home, while 11-15 year olds set fires in schools and community facilities. The New Zealand Fire Service, Transalpine Region Juvenile Intervention Programme statistics (New Zealand Fire Service, 2000) reported that a higher proportion of fires are set in rubbish. From a range of recorded fire types 42 children had set fires in rubbish, 28 were structure fires and 27 fires had been set at schools (Appendix G). Similar to other assessments of firesetting behaviour there is a paucity of site information and several reasons have been purported for this. Firstly, initial primary sources of information i.e., caregivers, may not know, given the surreptitious nature of the activity. Secondly, services that children are referred to may not consider this information to be useful in the diagnostic and decision-making process.

The environment associated with firesetting behaviour has been occasionally determined, thus also shedding light on its potential social context. The majority of studies report that children set fires on their own, although the age of the child has been

reported to affect the incidence of sole and group firesetting. Stewart & Culver (1982) reported that 62% of firesetting incidents were set alone, with younger children tending to fire set alone while older children generally set fires with another child. In contrast to these findings the New Zealand Fire Service, National Fire Awareness and Intervention Programme statistics (New Zealand Fire Service, 2000) reported that a higher proportion of children referred for firesetting behaviour were in a group setting at the time of the incident. From a national total of 731 referrals of children who fireplay or fireset 450 were part of a group (Appendix H). An earlier study by Fine and Louie (1979) reported 38% of incidents involved group firesetting, an aspect that was also explored by Fitzgerald and O'Hanlon (1991). Who reported that of 79 consecutive adolescent outpatient attendees at a child and family guidance clinic the number of fires set ranged from 1 to 20 (with a mean of 9.9). Given the age and the increased role and prominence of peers during adolescence, these findings are not surprising (Cole & Cole, 2001). As conformity to peer pressure is greater during adolescence than in early childhood, firesetting may be as a result of peer pressure, a situation in which peers coerce the child into firesetting. The social context of firesetting remains an area, which has been occasionally determined in studies, however further study is required so that an accurate assessment of its functional significance can be made.

Motives

Children firesetting has been studied for several years and there appears to be some consensus as to what motivates children to become involved with fire. These motives are reported to be – curiosity, experiment, mischief, vandalism, revenge, anger, cries for help, attention, boredom, peer pressure, frustration, heroism, irresistible impulse and fetishism (Faulk, 1978; New Zealand Fire Service, 2000; Reardon, 1990). Lewis and Yarnell (1951) conducted one of the earliest efforts to investigate the motivations of children who fireset. They reported that 49% of children had an attraction to fire and fire engines and 36% reported revenge against elders; for example, parents, foster parents and employers and a further 6% set a fire to cover up a theft. Stewart and Culver (1982) also reported that some children set fires in order to hurt or frighten others. In contrast to this, others reported a curiosity, desire to experiment and a

fascination with fires. Curiosity firesetting is reported as children experimenting with fire because they are interested in exploring their environment. They wish to know how fire feels, how it looks, how hot it is, how it burns and what it does (Federal Emergency Management Agency, 1978). The New Zealand Fire Service, National Fire Awareness and Intervention Programme statistics (New Zealand Fire Service, 2000) reports a range of motivation factors for children's firelighting behaviours, from experimentation, boredom and peer pressure (Appendix I). Similar to New Zealand's findings the Melbourne Fire and Emergency Services Board (2000) suggests that the motives for fireplay and firesetting are also wide ranging and change according to the child's age. For example

Reasons	Approx. Age	Association
Curiosity/Fascination	3-16 years	Attraction to the colour, light and energy released by flames.
Attention seeking	6-12 years	A change in the family situation, e.g. parental separation, new baby, learning or social difficulties.
Peer pressure	10-14 years	Learning difficulties or has low self esteem.
Anger/Revenge	8-14 years	Difficulty relating to peers, or experiencing family problems.
Malicious mischief	13-16 years	Family and social difficulties.

Similar suggestions are also made by Garry (1997) who reports that child firesetters fall into three general groups that are also based within an age range. The first is made up of children under seven years of age, with fires generally being started as a result of accidents or curiosity. The second group is children ranging in age from eight to twelve years. Although curiosity or experimentation motivates firesetting by a proportion of these children, a greater proportion of their behaviour represents underlying psychosocial conflicts. The third group is comprised of adolescents between the ages of thirteen and eighteen years of age. These youths tend to have a long history of

undetected fireplay and firesetting behaviour, with current firesetting behaviours being the result of either psychosocial conflict or intentional criminal behaviour.

Lewis and Yarnell (1951) found motives for female firesetters to be similar to males but with some notable differences, females rarely raised the fire alarm or helped to fight the fights. In fact, instead the "heroism" motive often involved a dramatic fire in which they were the 'heroic victims'. Occasionally fires also appeared as a result of anxiety over pregnancies.

Motivation or intention is crucial when determining the risk for future fireplay and firesetting behaviour, rather than the solitary focus on ready availability of matches and lighters. As most children do have access to matches or lighters, but would not think of setting a fire in their home or neighbourhood. To determine future risk, motivation, personality and the emotional state of the child needs to be considered, the finding of matches or lighters is merely the trigger to the behaviour rather than the motivator of fireplay or firesetting. Intervention strategies must employ approaches that not only focus on the suppression of the behaviour but also addresses "the fire within", that is the issues and challenges faced by their child and families. Such findings suggest that among the idiosyncratic reasons for fire lighting, the most prevalent are revenge, curiosity or aggression, but their validity, utility and correlates are untested.

Intervention: Procedures and Programs

The first challenge in trying to prevent fireplay and firesetting behaviour by a community is arriving at a shared understanding of the sources or causes of the problem. Defining the problem shapes the types of responses that may be considered, for example, if fireplay and firesetting behaviour is thought to be about individual characteristics such as impulsiveness, then interventions that target individuals and teach impulse control are logical options. If, on the other hand, fireplay and firesetting behaviour is viewed as a response to social conditions, then strategies that focus on empowering are more likely to be pursued. Without a clear and shared understanding of the sources of the problem, it is difficult for communities to develop a co-ordinated array of prevention services that are likely to reduce risk and the prevalence of fireplay and firesetting behaviour.

Early intervention is a strategy, normally arising after a firesetting incident, which deals with children who are identified as having engaged in firesetting or shown an interest in matches and lighters. Frequently the Fire Service is the primary community agency for early intervention and education. This requires trained personnel within the Fire Service to assess the child's degree of 'risk' for future firesetting. Insofar as fire service personnel are frequently the first professionals with whom firesetting children come in contact, programmes have been developed to enable firefighters to initiate an active role in the intervention process. These programmes have shown that innovative intervention programmes can reduce the incidence of fires set by children (Federal Emergency Management Agency, 1978). They also provide an overview of the characteristics of firesetters, a typology of children who set fires, guidelines for interviewing the child and parents, fire education strategies and guideline referrals to other support services.

During the past decade there has been considerable interest and growth in the numbers of nations that have established programs to address the growing concern about child firesetting. Housed primarily within fire services, these programs are designed to identify, evaluate, and treat the child firesetter to prevent the recurrence of firesetting. The New Zealand Fire Services have also been part of this trend and statistics continue to demonstrate increasing numbers of children who fireplay and fireset receiving intervention (Appendix B). The educational component that is provided by the Fire Service, consists of a variety of fire and life safety messages, and it underpins the key goals of the New Zealand Fire Service – fire prevention and fire safety. All efforts are directed at the firesetter and his or her family. The goal of education is to teach the child about fire, who should use it, the dangers, and how to prevent it. The family also learns ways to make their home safer and to reduce their risk of having a fire.

Education is also key to addressing the child's fascination or curiosity with fire and the programme aims to equip him or her with the tools necessary to recognise the dangers of fire. The New Zealand Fire Service in June 1999, launched a Home Safe Home education campaign which is aimed at cutting the number of preventable fire deaths in New Zealand by 50% over the next two years. An at 'risk group' who are being targeted in this campaign are children under five, who are reported to be twice as likely

than the general population to die in a fire. In the last year New Zealand has had 42 fire related deaths, 19 of these were children of which 11 were under the age of nine (Trerise, 1999). The programme receives referrals from fire stations, police departments, schools, parents, social service and mental health agencies, and justice system agencies. Fire Service personnel often have working relationships with some of these key agencies, but intervention rarely involves all of the key community agencies. The Fire Service is a valuable resource with a primary role in addressing fireplay and firesetting behaviour by children. Demands on personnel are high and will continue to be made by and of all service providers. The need continues for all services to become more proactive in their approaches, broaden their field of expertise, and network more closely with the community. Without doubt prevention and intervention, two key fire service principles are the way to reduce fireplay and firesetting behaviour and to make advances on the threat it poses to our society and children. In summary, the importance of comprehensive intervention programmes is frequently emphasised within the literature.

Rationale

It would be difficult to dispute that each year fires set by children are taking a tremendous toll in property losses, personal injuries and even death. Child fireplay and firesetting is without doubt a potentially dangerous behaviour that contributes significantly to the national fire problem and has medical, financial, social and psychological implications. As one form of preventable emergency, it warrants and requires further investigation. The aim of this descriptive study is to identify and explore primary caregiver's perspectives of social and behavioural characteristics of children who play and set fires and make comparisons with those who do not. The children will be aged between three and fourteen chronological years of age, and drawn from the community or Transalpine Fire Region intervention population. Further to this, the study seeks to address issues that have been raised in the literature regarding children who fireplay or fireset. Firstly, the effects of children's age and gender on fireplay and firesetting behaviours. Secondly, to identify demographic and fireplay or

firesetting incidents to determine what differentiates the groups and whether children that fireplay or fireset are heterogeneous groups.

A descriptive methodology will be used in this study, which according to Marshall & Rossman (1999) has the purpose of systematically describing facts and characteristics of a given population. Therefore, the researcher does not manipulate variables or control the environment, as the method does not predict events rather it seeks results indicating the relationships that point to the cause. Kerlinger (1973) also states that the central focus of descriptive research is to examine facts about people, their opinions and attitudes. Considering the aim of the study, a descriptive research methodology is both warranted and suitable. The study will identify and examine primary caregiver's perspectives of psychosocial and behavioural characteristics of non-and fireplaying or firesetting children by employing multiple methods, that is, questionnaires and document content analysis, community and Transalpine Fire Region samples. The commonly cited advantage of such a method is that it permits 'triangulation', that is the use of evidence from different sources, data collections, and of different investigators is reported to enhance credibility (Robson, 1997).

Chapter Two

Method

Participants

The total number of participants was made up of two groups that combined totalled two hundred and fifty primary caregivers of children (142 male and 108 female children). Children's ages ranged from three to fourteen chronological years for both groups. Caregiver's reported children's ethnicity as 83.6% Caucasian and 13.2% as Maori, 32.8% reported the child as being the oldest and 30% as the youngest child in the family, and 36.4% had one sibling and 29.6% had two siblings.

The first group consisted of two hundred primary caregivers with children (total of 100 male and 100 female children with a group mean age of 7.37), who attended Early Childhood centres, primary or intermediate schools within the metropolitan city of Christchurch, South Island, New Zealand. The inclusion criteria for primary caregivers were that they were a primary caregiver for a child between the ages of three and fourteen years of age.

The second group consisted of fifty primary caregivers with children (total of 42 male and 8 female children, with a group mean age of 8.63). The inclusion criteria for primary caregivers were that they had a child aged three to fourteen years who had been referred to the Transalpine Fire Safety Youth Liaison Officer for fireplay or firesetting behaviour in Christchurch, South Island. The inclusion criteria for analysis of document contents were that they were a primary caregiver for a child between the ages of three and fourteen years of age.

Recruitment

Two hundred questionnaire participants were recruited from early childhood centres, primary and intermediate schools within the metropolitan city of Christchurch, South Island, New Zealand.

Fifty written interview records of primary caregivers were selected by stratified randomly sampling from the New Zealand Fire Service, Transalpine Fire Region (T.A.F.R) in Christchurch, South Island, New Zealand.

Instruments

Questionnaires

Self-completion semi-open ended questionnaires (Appendix J) were formulated by the researcher and used to measure caregiver's perceptions of children's fireplay and firesetting behaviour. The questionnaires consist of demographic information and twenty-nine questions. The items represented on the questionnaire are the focus of the investigation. A self-addressed envelope was attached to the questionnaire.

Document content analysis forms

The document content analysis form (Appendix K), formulated by the researcher was used to record data collected from written interview records onto a standardised form. The items represented on the document content analysis form are the focus of the investigation and replicate the information within the questionnaires.

Procedure

(Appendix L).

The study was reviewed and approved by the University of Canterbury Human Ethics Committee. Questionnaire participation was completely voluntary, anonymous, and no names nor identifying features of the participants were collected. Informed consent was gained from the participants and rigorous ethical standards of research were adhered to.

Questionnaires were piloted on a small sub-sample of fifteen adults (Appendix J) all fifteen were not included in the study. The pilot ensured that the questionnaire had been checked for ambiguous questions and provided an opportunity to review phrasing, sequencing of questions and instructions. The researcher reviewed completed questionnaires and comments. Minor changes with respect to the instrument design emerged during the pilot study; these were incorporated in the questionnaire administered to the study participants. All fifteen questionnaires were destroyed at the completion of the review.

The administration of the questionnaires began with five Christchurch based Early Childhood centres being randomly selected from the Directory of Licensed Early Childhood Services in New Zealand (Ministry of Education, 1998). A total of ten primary and intermediate schools were randomly selected from the New Zealand Schools and Tertiary Institutions Directory (Ministry of Education, 1998). Early intervention, special education and secondary schools were deleted from the directory list. The fifteen identified Christchurch education facilities were mailed written information outlining the aims of the proposed study and requesting permission to invite primary caregiver's participation (Appendix M). The researcher phoned recipients one week after the mail out, to clarify the request being made, and to respond too queries and where applicable forward questionnaires, 'wanted' poster for caregiver's notice-boards and a 'thank you' poster for staff notice-boards was also included (Appendix J, O and P).

Children within participating facilities were randomly selected from centre or school rolls, and teachers were asked to forward the questionnaires to the children. The children took the questionnaire home and returned it in a provided self-addressed envelope to the centre or school. Five hundred questionnaires were delivered; the return rate was two hundred (40 %). Educational research practices within schools suggest a higher return rate of survey material when children are required to return the survey to their centre or school rather than returns by postage paid mail (Krippendorff, 1980).

The Fire Safety Youth Liaison Officer for the Transalpine Fire Region (T.A.F.R) was contacted in writing requesting access and consent to use the written records of primary caregiver interviews for document content analysis (Appendix N). Fire Service interview records required participants to make a declaration regarding whether information provided by them could be used for such purposes, with anonymity being preserved, only records stating approval for future research, and statistical purposes were used in the study. The researcher phoned the recipient one-week after the letter had been sent, to clarify the request being made, and to respond too queries.

After consent had been given to access written interview records (T.A.F.R), a period of time was agreed upon to allow for data collection. A stratified random sampling procedure was adopted, beginning with the most recent file and working in reverse chronological file (from most recent to least), and dividing the population into groups based upon age and gender. Numbers identified for each group reflected proportionate sampling, that is the numbers of the groups selected for participation reflected the relative numbers in the population as a whole. That is a maximum of 9 interview records of children aged 3-5 years, 20 interview records of children aged between 6-10 years, 18 interview records of children aged between 11-14 years and 3 interview records of children aged 15-16 years (Gibson & Henry, 1997).

The researcher completed the content analysis of existing written interview records (documents) conducted by the Fire Safety Youth Liaison Officer of the Transalpine Fire Region (T.A.F.R) with primary caregivers (Appendix K). The researcher searched each file's documents for information that pertained to the document content analysis form. Information from each file was recorded separately; each question was recorded onto individual analysis forms. Complete anonymity of names and identifying characteristics was preserved at all times. An independent person randomly checked the document content analysis forms for consistency in method, analysis and recording. The advantage of analysing existing documents was to obtain a larger cross section based upon age and gender of children that are fireplaying or firesetting. Also, the secondary analysis of data allows for further interpretation, conclusions or knowledge that is additional to, or different from that presented in the first instance.

Data Collection

Questionnaire

Self-completion semi-open ended questionnaires (Appendix J), which participants filled out independently, were returned to the researcher-in a sealed, addressed envelope via the child's centre or school. The collection of all returned questionnaires from schools and centres was arranged at a time that was convenient for educational personnel, by

telephone and facsimile message (Appendix Q). The questionnaires were stored in a locked cabinet the researcher had sole access to.

Document analysis forms

Fifty written interview records of primary caregivers were analysed by the researcher and information was recorded onto document content analysis forms (Appendix K). The forms were held in a locked cabinet by the researcher, who had sole access.

Data Analysis

Questionnaire and document content analysis forms, demographic variables and question 1 to 29 were analysed for non-fireplay and firesetting (questionnaires), prior fireplay or firesetters (questionnaires), fireplay (questionnaires), and firesetters (questionnaires), fireplay and firesetters (T.A.F.R). The Statistical Package for Social Sciences (SPSS, Version 8.0) for Windows software (Coakes & Steed, 1999) was used for computing all data. All demographic variables and questions were analysed and coded. Frequencies were tabulated for items and descriptive statistical analysis was performed. A range of quotes from question 29 of the questionnaire was included in the results. This assisted in assuring that the participant's voices would be heard.

Questionnaire

The questionnaires were sorted into four groups according to operational definition non-fireplay/setters, non-fireplay/firesetter (prior), firesetters and fireplay (Table 1).

Operational definition for category of non fireplay/setter (NF, NM):
Child has not played with matches or lighters nor caused or threatened to cause significant injury or personal damage by fireplay and/or firesetting within the last twelve months. Identified by a no response to question 8 and 11 on the questionnaire.

Operational definition for category of non fireplay/setter (prior) (NPF, NPM):
Child has not played with matches or lighters nor caused or threatened to cause significant injury or personal damage by fireplay and/or firesetting within the last

twelve months but has engaged in fireplay and/or firesetting behaviour previously. Identified by a yes response to question 8 and a no response to question 11 on the questionnaire.

Operational definition for category of fireplay (FPF, FPM):
Child having played with matches or lighters on at least two separate occasions within the last twelve months, which did not cause or threaten to cause significant injury or personal damage. Identified by a 'yes' response to question 8 and 11, 'yes' response to 11a, 'two or more incidents' response to 11b on the questionnaire.

Operational definition for category of firesetter (FSF, FSM):
History of at least two incidents of firesetting within the last twelve months, or at least one episode of firesetting which caused or threatened to cause significant injury or property damage. Identified by a 'yes' response to question 8 and 11, 'no' response to 11a, either response from 11b, 'significant injury, property damage or both' response on the questionnaire.

Table 1: Operational definitions – questionnaire sample

Groups:	Non fireplay /firesetter	Non fireplay (prior)	Fireplay	Firesetter
Response for inclusion	Q. 8 - no 11 - no	Q. 8 - yes Q.11 - no	Q. 8 - yes 11 - yes 11a - yes 11b – 2 or less	Q. 8 - yes 11 - yes 11a - no 11b – a or b

For some question responses groups were further sorted, according to gender and age. For example:

- Non fireplay/setter, female, aged between three and six years.
- Non fireplay/setter, female, aged between seven and ten years.
- Non fireplay/setter, female aged between eleven and fourteen years.
- Non fireplay/setter (prior), female, aged between three and six years.
- Non fireplay/setter (prior), female, aged between seven and ten years.
- Non fireplay/setter (prior), female aged between eleven and fourteen years.
- Fireplay, female, aged between three and six years.
- Fireplay, female, aged between seven and ten years.
- Fireplay, female aged between eleven and fourteen years.
- Firesetter, female, aged between three and six years.
- Firesetter, female, aged between seven and ten years.
- Firesetter, female aged between eleven and fourteen years.
- Non fireplay/setter, male, aged between three and six years.
- Non fireplay/setter, male, aged between seven and ten years.
- Non fireplay/setter, male aged between eleven and fourteen years.
- Non fireplay/setter (prior), male, aged between three and six years.
- Non fireplay/setter (prior), male, aged between seven and ten years.
- Non fireplay/setter (prior), male aged between eleven and fourteen years.
- Fireplay, male, aged between three and six years.
- Fireplay, male, aged between seven and ten years.
- Fireplay, male aged between eleven and fourteen years.
- Firesetter, male, aged between three and six years.
- Firesetter, male, aged between seven and ten years.
- Firesetter, male aged between eleven and fourteen years.

Demographic and recorded responses to questions 1 to 29 (variable labels) on the questionnaires, e.g., age, gender, ethnicity, primary caregiver, primary caregiver's marital status, number of siblings were read and recorded individually onto a SPSS data file (template). Responses were coded using a nominal scale, which identifies the level of a variable (value labels). For example, the gender variable response was coded as 1 or 2, with 1 being defined as male and 2 as female. The size of the numbers is

meaningless, and 2 is not bigger or better than 1. Data were examined for patterns among replies to questionnaires and relationship between variables.

Transalpine Fire Region Document Analysis

The document content analysis forms were sorted according to operational definitions of two group's firesetters and fireplay (T.A.F.R), (Table 2).

Operational definition for category of fireplay (TFPF, TFPM):

Child having played with matches or lighters on at least three separate occasions within the last twelve months, which did not cause or threaten to cause significant injury or personal damage. Identified by a 'yes' response to question 11, 'no' response to 11a, 'three or more incidents' response to 11b, 'no' response to 11c and 'accidental' response to question 18 on the document content analysis form.

Operational definition for category of firesetter (TFSF, TFSM):

History of at least two incidents of firesetting within the last twelve months, or at least one episode of firesetting which caused or threatened to cause significant injury or property damage. Identified by a 'yes' response to question 11, 'no' response to 11a, either response from 11b, 'significant injury, property damage or both' response from 11c on the document content analysis form.

Table 2: Operational definitions – Transalpine Fire Region sample

Groups:	Fireplay	Firesetter
Response for inclusion	Q.11 - yes 11a - no 11b - three or more 11c - no	Q.11 - yes 11a - no 11b - either response 11c - significant injury or property damage or both.

Initially variable responses were sorted into two groups (fireplay or firesetter), analysis of some variables required further sorting according to gender and age. For example:

- Fireplay, female, aged between three and six years.
- Fireplay, female, aged between seven and ten years.
- Fireplay, female aged between eleven and fourteen years.
- Firesetter, female, aged between three and six years.
- Firesetter, female, aged between seven and ten years.
- Firesetter, female aged between eleven and fourteen years.
- Non fireplay/setter, male, aged between three and six years.
- Non fireplay/setter, male, aged between seven and ten years.
- Non fireplay/setter, male aged between eleven and fourteen years.
- Fireplay, male, aged between three and six years.
- Fireplay, male, aged between seven and ten years.
- Fireplay, male aged between eleven and fourteen years.
- Firesetter, male, aged between three and six years.
- Firesetter, male, aged between seven and ten years.
- Firesetter, male aged between eleven and fourteen years.

Demographic and recorded responses to questions 1 to 29 (variable labels) on the document content analysis forms, e.g., age, gender, ethnicity, primary caregiver, primary caregiver's marital status, number of siblings were read and recorded individually onto the SPSS data file template. Responses were coded using a nominal scale, which identifies the level of a variable (value labels). For example, the ethnicity variable response was coded as 1 to 7, with 1 being defined as New Zealand/European and 2 as Maori. The size of the numbers is meaningless, and 2 is not bigger or better than 1. Response data were examined for patterns and relationship between variables. (Note: procedure mirrors that of questionnaire data analysis).

Data were presented for questionnaires and document content analysis forms by graphs and tables. The groups were presented to allow for comparison of characteristics and/or variables (Table 3). Where appropriate percentages were identified so groups of varying sizes could be compared.

Example:

Table 3: Demographic characteristics of operationally defined groups

Groups:	Non Fireplay Firesetters		Fireplay Community		Firesetters Community		Fireplay T.A. Fire Region		Firesetters T.A. Fire Region	
Characteristic	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*
Age										
Gender										
Male										
Female										

All raw data collected during the study were shredded at the conclusion of the data analysis.

Letters of thanks were sent to all participating schools, centres and the Transalpine Fire Service Region for their support in the study (Appendix R and S).

Results

This section refers to data collected from questionnaires and document content analysis forms. Some of the questionnaires lacked responses, although in the main, questionnaires were completed to a high standard. Not all demographic variables and questions was able to be completed from the document content analysis forms as some details were incomplete within written records. Results for each question will be presented by; the number of participants for each sample (questionnaire and document content analysis) will be identified by operational definitions and presented in descriptive and cross-tabulation table format.

The number of questionnaires returned was 200 from a total of 500; the proportion of female and male participants (children) was 50%, all returned questionnaires were included in the study. The overall response rate was 40%. Document content analysis was completed on a total of 50 forms, the proportion of female participants was 16% and male participants were 84%, all document content analysis forms were included in the study, thus there were 250 possible respondents in all.

Background information

Data from questionnaires and document content analysis forms were analysed, sorted and grouped according to operational definitions and gender (Table 1 & 2). Table 4 shows the number and percentage of children for each group: non-fireplay/setting, non-fireplay/setting (prior incidents), fireplay and firesetting. The total number of participants (questionnaire and document content analysis) consists of 58.4% of children who have not engaged in fireplay/setting behaviours, 22.4% are reported to have played with fire (during and previous to the last 12 months) and 19.2% have set fires. Fireplay behaviour within and during the last 12 months for both samples (community and Fire Service) is clearly not different (22% of community and 24% of Fire Service samples). However, gender bias between groups were noted with the community sample for females being 9.5% and males 12.5% and the Fire Service sample for females being 4% and males 20%. Firesetting behaviour for both samples

(community and Fire Service) is clearly different (5% of community and 76% of Fire Service samples) gender bias between both samples is clearly not different.

Table 4: Number and percentage for each operationally defined group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fireplay female	5	2.0	2.0	2.0
	Fireplay male	19	7.6	7.6	9.6
	Firesetter female	3	1.2	1.2	10.8
	Firesetter male	7	2.8	2.8	13.6
	Non female	78	31.2	31.2	44.8
	Non male	68	27.2	27.2	72.0
	Non prior female	14	5.6	5.6	77.6
	Non prior male	6	2.4	2.4	80.0
	Transalpine fireplay female	2	.8	.8	80.8
	Transalpine fireplay male	10	4.0	4.0	84.8
	Transalpine firesetter female	6	2.4	2.4	87.2
	Transalpine firesetter male	32	12.8	12.8	100.0
	Total	250	100.0	100.0	
Total		250	100.0		

Age of children

Table 5 shows the total number, frequency and percentage for both samples children's chronological age. The total sample divided into three age groups 3-6, 7-10 and 11-14 shows a difference in age group numbers however it is not salient. The

percentage of children aged between 3-6 years is 34.8%, between 7-10 years is 40.8% and 11-14 is 24.4%.

Table 5: Total sample frequency and percentage for children's chronological age.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	16	6.4	6.4	6.4
	4.00	25	10.0	10.0	16.4
	5.00	19	7.6	7.6	24.0
	6.00	27	10.8	10.8	34.8
	7.00	19	7.6	7.6	42.4
	8.00	24	9.6	9.6	52.0
	9.00	28	11.2	11.2	63.2
	10.00	31	12.4	12.4	75.6
	11.00	24	9.6	9.6	85.2
	12.00	18	7.2	7.2	92.4
	13.00	12	4.8	4.8	97.2
	14.00	7	2.8	2.8	100.0
	Total	250	100.0	100.0	
Total		250	100.0		

Children's gender

Table 6 shows the total number, frequency and percentage of children's gender for both samples. Of the total sample 56.4% (141) are males and 43.6% (109) are females.

Table 6: Total sample frequency and percentage for children's gender.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	141	56.4	56.4	56.4
	female	109	43.6	43.6	100.0
	Total	250	100.0	100.0	
Total		250	100.0		

Table 7 represents a cross-tabulation of group frequency, age and gender for: non-fireplay/setting, non-fireplay/setting (prior incidents), fireplay and firesetting. The total number of participants (questionnaire and document content analysis) consists of 176 children who have not engaged in fireplay/setting behaviours, 56 are reported to have played with fire (during and previous to the last 12 months) and 48 have set fires. Of the fireplay total group gender is proportionally higher for males (35) than females (21). The firesetting group for both samples (community and Fire Service) is considerably higher for males (39) than females (9). However the gender difference is not as noteworthy for non-fireplay/setting behaviour, females were reported at 78 and males at 68. Across most groups the most prevalent age range was 7-10 years.

Table 7: Cross-tabulation of operationally defined group, age and gender.

Group	**Age** 3-6 years	7-10 years	11-14 years	**Gender Total** Male	Female
NPF	5	7	2	0	14
NPM	8	10	5	23	0
NF	30	37	11	0	78
NM	26	25	17	68	0
FPF	2	2	1	0	5
FPM	1	0	1	2	0
FSF	1	0	2	0	3
FSM	0	3	4	7	0
TFPF	0	2	0	0	2
TFPM	2	4	4	10	0
TFSF	3	2	1	0	6
TFSM	9	10	13	32	0
Total	87	102	61	142	108

Key for Groups:

NPF	Non Prior Fireplay Female (incident prior to 12 months)
NPM	Non Prior Fireplay Male (incident prior to 12 months)
NF	Non Fireplay Female
NM	Non Fireplay Male
FPF	Fireplay Female
FPM	Fireplay Male
FSF	Firesetting Female
FSM	Firesetting Male
TFPF	Transalpine Fireplay Female
TFPM	Transalpine Fireplay Male
TFSF	Transalpine Firesetting Female
TFSM	Transalpine Firesetting Male

Ethnicity

Figure 1 shows that a high proportion of the total sample reported the child's ethnicity as New Zealand/European followed by Maori.

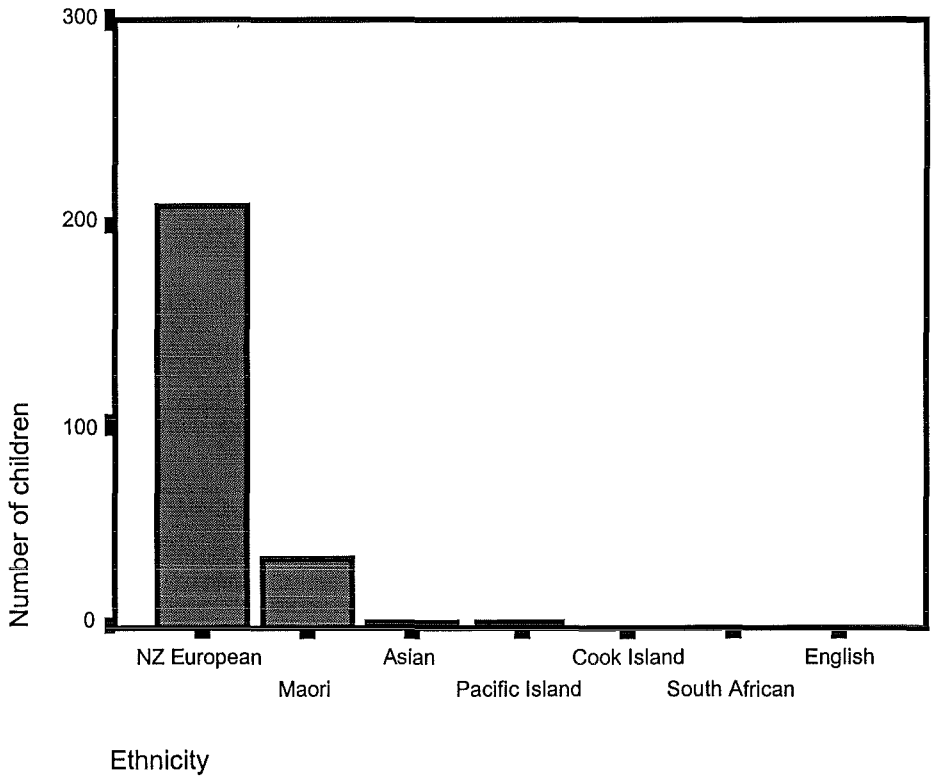

Figure 1: Children's ethnicity for total sample

Medication taken by child

Table 8 shows the frequency and percent for children taking medication from both samples. Caregivers were asked to identify by a yes or no response if the child was receiving medication, a considerable proportion of children (90.4) were reported as not receiving medication at the time of the study.

Table 8: Total sample frequency and percentage of children receiving medication

Medication	Frequency	Percent	Cumulative Percent
Yes	23	9.2	9.2
No	226	90.4	99.6
Missing	1	.4	100.0
Total	250	100.0	

If caregivers recorded a yes response to their child receiving medication they were asked to specify what the medication was required for. The positive responses to children receiving medication reported medication had been prescribed for infections, asthma, headaches and epilepsy (1), the findings were not salient.

Diagnosis and/or conditions experienced by children

Caregivers were asked to identify from a range of conditions those that their child had been diagnosed with and/or experienced. The range included Attention Deficit Disorder (ADD), Conduct Disorder, Learning Difficulties, Attention Deficit Hyperactivity Disorder (ADHD), bed-wetting, truancy and to record any others. Caregivers were able to record multiple responses. Of the total sample (250) 181 caregivers had not responded to this question. The 69 responses ranged widely with the most noted conditions being headaches (14) and bed-wetting (13), neither were a salient finding at 10.8% of the sample total. The range of responses included disorders listed in the Diagnostic Statistical Manual-IV, for example, Attention Deficit Disorder, Conduct Disorder, Learning Difficulties and Attention Deficit Hyperactivity Disorder. Of the four conditions 17 from 69 responses were positive, with a higher proportion of responses being recorded for Conduct Disorder, however the finding is not salient at 3.2% of the total sample.

Table 9: Diagnosis and experiences of children in the total sample

Diagnosis/ Experiences	Frequency	Percent	Cumulative Percent
Asthma	3	1.2	4.3
Headaches	14	5.6	24.6
Attention Deficit Disorder	4	1.6	30.4
Conduct Disorder	8	3.2	42.0
Learning difficulties	1	.4	43.5
Bed wetting	13	5.2	62.3
Attention Deficit Hyperactivity Disorder	4	1.6	68.1
Truancy	7	2.8	78.3
Shyness	4	1.6	84.1
Stealing	4	1.6	89.9
Dyspraxia	1	.4	91.3
Hearing impairment	1	.4	92.8
Violent toward others	1	.4	94.2
Epilepsy	2	.8	97.1
Oppositional Defiance Disorder	1	.4	98.6
Alcohol and drug issues	1	.4	100.0
Total	69	27.6	
Missing	181	72.4	
Total	250	100.0	

Number of children's siblings

Caregivers were asked to identify the number of siblings the child had. The range included nil, one, two, three, four and five or more. Of the total sample 25 responses were missing and 225 were available for analysis. The most frequently reported response was one sibling (36.4) followed by two siblings (29.6%), collectively one and two sibling responses made up the biggest proportion of responses. Cross tabulation of sample groups was not valid, as a considerable proportion of responses could not be identified from the document content analysis.

Table 10: Total sample frequency and percentage of children with siblings

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nil	25	10.0	11.1	11.1
	one	91	36.4	40.4	51.6
	two	74	29.6	32.9	84.4
	three	22	8.8	9.8	94.2
	four	8	3.2	3.6	97.8
	five or more	5	2.0	2.2	100.0
	Total	225	90.0	100.0	
Missing	99.00	1	.4		
	System Missing	24	9.6		
	Total	25	10.0		
Total		250	100.0		

Birth order of child

Caregivers were asked to identify the birth order of the child. The range included only child, youngest, middle, oldest and unknown. Of the total sample 25 responses were missing and 225 were available for analysis. The most frequently reported response was oldest child at 32.8% followed by youngest child at 30.0%, collectively the first and last born birth order made up the biggest proportion of responses. The only child was the smallest proportion at 10.4% of the total sample. Cross tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

Table 11: Total sample frequency and percentage for children's birth order

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	only child	26	10.4	11.6	11.6
	youngest	75	30.0	33.3	44.9
	middle	42	16.8	18.7	63.6
	oldest	82	32.8	36.4	100.0
	Total	225	90.0	100.0	
Missing	99.00	1	.4		
	System Missing	24	9.6		
	Total	25	10.0		
Total		250	100.0		

Children's primary caregiver

Caregivers were asked to identify the primary caregiver(s) of the child. The range included only mother, father, both or other. Of the total sample (249) the most frequently reported response was both parents 50.4% followed by mother at 44%. Table 12 represents a cross-tabulation of group, frequency and primary caregiver for non-fireplay/setting, non-fireplay/setting (prior incidents), fireplay and firesetting. The total number of participants (questionnaire and document content analysis) consists of 249. Of the fireplay total group primary caregiver is evenly represented across mother (27) and both parents (28). The firesetting group for both samples (community and Fire Service) is considerably higher for mothers (28) as primary caregiver than both parents (15). The difference in primary caregiver responses is not as noteworthy for non-fireplay/setting behaviour, both parents as caregivers were reported at 78 and mothers at 55, with the fathers being recorded as primary caregiver in 7 responses. Across all groups the most prevalent response for primary caregiver was both parents (126) and mothers (110).

Table 12: Cross-tabulation of operationally defined group and primary caregivers.

Count

		Primary Caregiver				
		mother	father	both	other	Total
Identification number	Fireplay female	2		3		5
	Fireplay male	9		10		19
	Firesetter female	3				3
	Firesetter male	3		4		7
	Non female	26	3	49		78
	Non male	29	4	34		67
	Non prior female	6		8		14
	Non prior male	3	1	2		6
	Transalpine fireplay female			2		2
	Transalpine fireplay male	7		3		10
	Transalpine firesetter female	3		3		6
	Transalpine firesetter male	19	3	8	2	32
Total		110	11	126	2	249

Primary caregiver's present marital status:

Primary caregivers were asked to identify their present marital status. The range of responses included married, divorced, de facto, separated, single, widowed and other. Of the total sample the most frequently reported response was married. A cross-tabulation of group, frequency and primary caregivers marital status for: non fireplay/setting (prior incidents), fireplay and firesetting identified that of the fireplay

group married marital status (35) was the highest proportion of responses for this group followed by single or separated (12). Both single (21) and married marital status (17) was more evenly represented across the firesetting group. The non-firesetting group for both samples (community and Fire Service) is considerably higher for married marital status (112) than single or separated status (16). Figure 2 shows that for the total sample married marital status is the largest proportion.

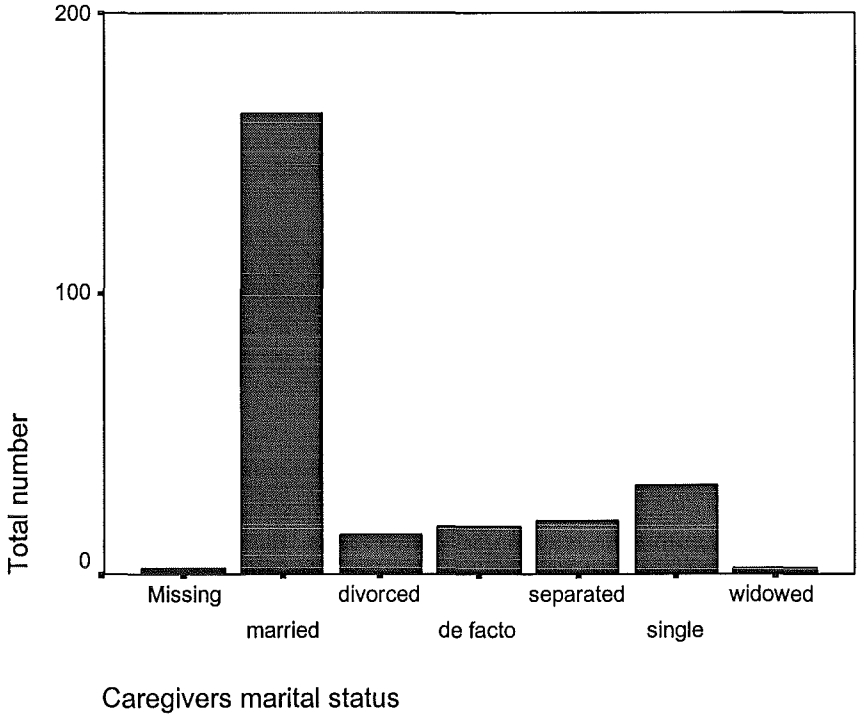

Figure 2: Primary caregivers marital status for total sample

Caregiver child resides with

Primary caregivers were asked to identify the caregiver that the child resides with. The range of responses included parents, mother, father, grandparents, mother/stepfather, father/stepmother, foster parents, siblings and other. Table 13

shows that of the total sample the most frequently reported response was both parents (67.6%) followed by mother (22.4%) and mother/stepfather (5.2%).

Table 13: Total sample frequency and percentage of children residing with caregivers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	both parents	169	67.6	67.9	67.9
	mother	56	22.4	22.5	90.4
	father	6	2.4	2.4	92.8
	grandparents	1	.4	.4	93.2
	mother/stepfath	13	5.2	5.2	98.4
	father/stepmoth	2	.8	.8	99.2
	foster parents	2	.8	.8	100.0
	Total	249	99.6	100.0	
Missing	System Missing	1	.4		
	Total	1	.4		
Total		250	100.0		

Child plays well with other children

Primary caregivers were asked to identify whether the child plays well with other children. The range of responses included yes, no and unknown. Table 14 shows that of the total sample the most frequently reported response was yes (78.8%) then no (2.8%). Of the total sample 45 responses were missing and 205 were available for analysis. Cross tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

Table 14: Total sample frequency and percentage of children who play well with others

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	197	78.8	96.1	96.1
	no	7	2.8	3.4	99.5
	unknown	1	.4	.5	100.0
	Total	205	82.0	100.0	
Missing	System Missing	45	18.0		
	Total	45	18.0		
Total		250	100.0		

Children's conflicts with peers

Primary caregivers were asked to identify whether the child engages in more conflicts than their peers. The range of responses included yes, no and unknown. Table 15 shows that of the total sample the most frequently reported response was no (74.4%) then yes (5.6%). Of the total sample 44 responses were missing and 206 were available for analysis. Cross-tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

Table 15: Total sample frequency and percentage of children who engage in more conflict than peers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	14	5.6	6.8	6.8
	no	186	74.4	90.3	97.1
	unknown	6	2.4	2.9	100.0
	Total	206	82.4	100.0	
Missing	System Missing	44	17.6		
	Total	44	17.6		
Total		250	100.0		

Peer's behaviour toward children

Primary caregivers were asked to identify peer's behaviour toward the child and whether they are 'picked' on by others more frequently. The range of responses included yes, no and unknown. Table 16 shows that of the total sample the most frequently reported response was no (52.8%) then yes (22.8%) and unknown (6.0%). Of the total sample 46 responses were missing and 204 were available for analysis. Cross-tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

Table 16: Total sample frequency and percentage of children who are 'picked' on by others

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	57	22.8	27.9	27.9
	no	132	52.8	64.7	92.6
	unknown	15	6.0	7.4	100.0
	Total	204	81.6	100.0	
Missing	System Missing	46	18.4		
	Total	46	18.4		
Total		250	100.0		

Child play/stay alone rather than with other children

Primary caregivers were asked to identify whether the child plays or stays alone rather than with other children. The range of responses included yes, no and unknown. Table 17 shows that of the total sample the most frequently reported response was no (68.4%) then yes (11.2%) and unknown (1.6%) Of the total sample 47 responses were missing and 203 were available for analysis. Cross-tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

Table 17: Total sample frequency and percentage of children who play or stay alone rather than with others

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	28	11.2	13.8	13.8
	no	171	68.4	84.2	98.0
	unknown	4	1.6	2.0	100.0
	Total	203	81.2	100.0	
Missing	System Missing	47	18.8		
	Total	47	18.8		
Total		250	100.0		

Child's ability to make friends easily

Primary caregivers were asked to identify whether the child is able to make friends with others easily. The range of responses included yes, no and unknown. Table 18 shows that of the total sample the most frequently reported response was yes (70.4%) then no (10.8%) and unknown (1.2%) Of the total sample 44 responses were missing and 206 were available for analysis. Cross-tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

Table 18: Total sample frequency and percentage of children who are able to make friends with others easily

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	176	70.4	85.4	85.4
	no	27	10.8	13.1	98.5
	unknown	3	1.2	1.5	100.0
	Total	206	82.4	100.0	
Missing	System Missing	44	17.6		
	Total	44	17.6		
Total		250	100.0		

Questionnaire section:

Smokers within the home

Table 19 shows the frequency and percent of persons who smoke in the child's home. Caregivers were asked to identify by a yes or no response if anyone in the home smoked. Of the total sample 61.6% of caregivers reported no and 38.4% reported yes.

Table 19: Total sample frequency and percentage of persons who smoke in the home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	96	38.4	38.4	38.4
	no	154	61.6	61.6	100.0
	Total	250	100.0	100.0	
Total		250	100.0		

If primary caregivers recorded a yes response to someone smoking in the home they were asked to identify the number of cigarettes smoked per day. Table 20 shows the range of cigarettes smoked per day was 1-30 and the largest proportion of smokers was smoking 17 cigarettes per day.

Table 20: Total sample frequency and percentage of cigarettes smoked per day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	.8	3.7	3.7
	3.00	2	.8	3.7	7.4
	4.00	3	1.2	5.6	13.0
	5.00	5	2.0	9.3	22.2
	6.00	2	.8	3.7	25.9
	8.00	1	.4	1.9	27.8
	10.00	17	6.8	31.5	59.3
	15.00	8	3.2	14.8	74.1
	20.00	8	3.2	14.8	88.9
	25.00	4	1.6	7.4	96.3
	30.00	2	.8	3.7	100.0
	Total	54	21.6	100.0	
Missing	System Missing	196	78.4		
	Total	196	78.4		
Total		250	100.0		

Table 21 represents a cross-tabulation of group and numbers of smokers in the home for non-fireplay/setting, non-fireplay/setting (prior incidents), fireplay and firesetting. The total number of participants (questionnaire and document content analysis) consists of 250. Of the fireplay total group 25 persons are reported to smoke in the home and 31 do not. The firesetting group for both samples (community and Fire Service) is considerably higher for smokers in the home (33) than non-smokers' (15).

The difference in persons reported to smoke in the home is also noteworthy for the non-fireplay/setting group with 38 persons smoking and 108 do not. Across all groups the most prevalent smokers in the home were the fireplay and firesetting groups.

Table 21: Cross-tabulation of operationally defined group and persons smoking in the home

Count

		Anyone in home smoke		
		yes	no	Total
Identification number	Fireplay female	2	3	5
	Fireplay male	7	12	19
	Firesetter female	2	1	3
	Firesetter male	2	5	7
	Non female	18	60	78
	Non male	20	48	68
	Non prior female	6	8	14
	Non prior male	2	4	6
	Transalpine fireplay female	1	1	2
	Transalpine fireplay male	7	3	10
	Transalpine firesetter female	5	1	6
	Transalpine firesetter male	24	8	32
Total		96	154	250

Primary caregiver's awareness of the New Zealand Fire Service education programmes

Caregivers were asked to identify by a yes or no response if they were aware of the New Zealand Fire Service education programmes. Of the total sample of caregivers 182 reported yes to being aware of the programmes and 66 reported no. Table 22 represents a cross-tabulation of operationally defined groups and the number of caregivers who are aware of the New Zealand Fire Service education programmes. The total number of participants (questionnaire and document content analysis) consists of 248. Of the fireplay total group 39 persons are reported to be aware of the education programmes and 17 are not. The firesetting group for both samples (community and Fire Service) has a wide variation in findings with 43 caregivers being aware and 5 were not. The difference in caregiver's awareness of education programmes is also noteworthy with the non-fireplay/setting group with 100 caregivers being aware and 44 were not. Across all groups the most prevalent finding for each group was that primary caregivers were more likely to be aware of education programmes that not.

Table 22: Cross-tabulation of operationally defined group and caregiver's awareness of New Zealand Fire Service education programmes

Count

		Aware of NZFS educ programme		
		yes	no	Total
Identification number	Fireplay female		5	5
	Fireplay male	14	5	19
	Firesetter female	2	1	3
	Firesetter male	6	1	7
	Non female	52	24	76
	Non male	48	20	68
	Non prior female	8	6	14
	Non prior male	5	1	6
	Transalpine fireplay female	2		2
	Transalpine fireplay male	10		10
	Transalpine firesetter female	5	1	6
	Transalpine firesetter male	30	2	32
Total		182	66	248

Fire safety and children

Table 23 shows the frequency of children who have been taught about fire safety. Caregivers were asked to identify by a yes or no response if their child had been taught about fire safety. Of the total sample of 249, a considerable proportion of caregivers (206) reported yes and 31 reported no.

Table 23: Total sample frequency of children who have been taught about fire safety

Response	**Frequency**
Yes	206
No	31
Unknown	12
Total	247

If caregivers recorded a yes response to their child having been taught about fire safety caregivers were asked to identify from a range of responses that had provided the teaching. The range of persons included pre-school teachers, school, fire safety officers, caregivers and others were asked to be recorded. Caregivers were able to record multiple responses. Of the total responses (412) from caregivers the findings varied widely. The largest group to have taught children about fire safety was reported to be schools (140), caregivers responses were next at 112, the following two groups were pre-school teachers and fire service personnel both reporting responses of 78 respectively. The least number of responses were reported for scouts and keas (2) and television (1). The prevalent response across all groups was the educator (school, pre-school teacher and fire service personnel).

Table 24: Total sample number of providers for fire safety education

Fire safety education provider	**Responses**
Schools	140
Caregivers	112
Pre-school teachers	78
Fire service personnel	78
Keas and scouts	2
Television	1
Total	412

Sources of fire children are familiar with

Caregivers were asked to identify sources of fire that the child was familiar with. The range included open fire, woodburner, gas fire and or heater, candles, gas hotplate and or oven, barbeque, bonfires, lighters and or matches, fireworks and to record others. Caregivers were able to record multiple responses. Table 25 shows the total sample frequency of fire sources that children are familiar with. Of the total sample (250) the majority of caregivers had recorded multiple responses (1146). The 1146 responses ranged widely with the most noted fire source being candles (166), barbeque (165), lighters and or matches (163), woodburner (153) and fireworks (139).

Table 25: Total sample frequency of fire sources that children are familiar with

Sources of fire	Frequency of responses
Open fire	101
Woodburner	153
Gas fire/heater	117
Candles	166
Gas hotplate/oven	98
Barbeque	165
Bonfires	66
Lighters/matches	163
Fireworks	139
Incinerator	3
Oil burners	1
Campfires	2
Magnifying glass	1
Cooking over open fire (beach)	1
Total	1146

Location of matches and or lighters in the home

Primary caregivers were asked to identify the location of matches and lighters within their home, a range was not provided and caregivers were asked to record their response in writing. The range of responses included out of reach, kept on caregiver, locked away, matches or lighters were not kept in the home, on furniture which was accessible to children, for example on top of the television, table, on a shelf or in a drawer or cupboard. Figure 3 shows that of the total sample the most frequently reported response was shelf/drawer or cupboard (53.6%) then out of reach (14.4%) and matches and lighters being accessible at children's height (4.8%). Of the total sample 52 responses were missing and 198 were available for analysis. Cross-tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

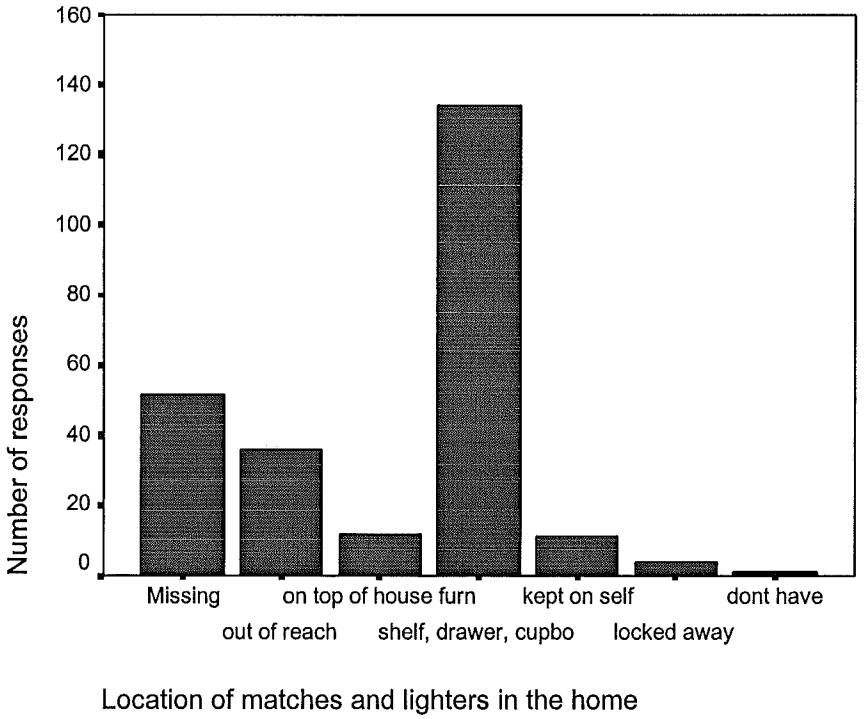

Figure 3: Location of matches and lighters within the home for the total sample

Children's preference with lighting matches, lighters or candles

Primary caregivers were asked to identify whether the child likes to light matches, lighters or candles. The range of responses included yes, no and not permitted. Table 26 shows that of the total sample the most frequently reported response was not permitted (36.8%) yes (24%) and no (23.6%). Of the total sample 39 responses were missing and 211 were available for analysis. Cross-tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

Table 26: Total sample frequency of children who like to light matches, lighters or candles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	60	24.0	28.4	28.4
	no	59	23.6	28.0	56.4
	not permitted	92	36.8	43.6	100.0
	Total	211	84.4	100.0	
Missing	System Missing	39	15.6		
	Total	39	15.6		
Total		250	100.0		

Children that like helping adults when they work with fire

Primary caregivers were asked to identify whether the child likes to help adults when they work with fire. The range of responses included yes, no and not permitted. Table 27 shows the total sample of children who like to help adults when working with fire, the findings across responses were not substantially different. The percentage of responses reported for not permitted was 30.8% yes responses reported 28.8%, and no responses 22%. Of the total sample 46 responses were missing and 194 were available for analysis. Cross-tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

Table 27: Total sample frequency of children who like to help adults when working with fire

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	72	28.8	35.3	35.3
	no	55	22.0	27.0	62.3
	not permitted	77	30.8	37.7	100.0
	Total	204	81.6	100.0	
Missing	System Missing	46	18.4		
	Total	46	18.4		
Total		250	100.0		

Children's expressed interest and or fascination in fire

Primary caregivers were asked to identify whether their child had expressed an interest and or fascination in fire. The range of responses included yes and no. Table 28 shows that of the total sample the most frequently reported response was no (57.2%) and yes (42.8%). Of the total sample no responses were missing and 250 were available for analysis.

Table 28: Total sample frequency of children who have expressed an interest and or fascination in fire

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	107	42.8	42.8	42.8
	no	143	57.2	57.2	100.0
	Total	250	100.0	100.0	
Total		250	100.0		

If caregivers recorded a yes response to their child having expressed an interest and or fascination in fire they were asked to identify at what age the child first showed an interest. Table 29 shows that the age range for fire interest was 1-14 years. Of the total responses (94) there was some variation in age range (6-0.4%) however the findings were not noteworthy across the total sample.

Table 29: Total sample frequency of age that children first showed an interest and or fascination in fire

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	.8	2.1	2.1
	2.00	11	4.4	11.7	13.8
	3.00	13	5.2	13.8	27.7
	4.00	15	6.0	16.0	43.6
	5.00	7	2.8	7.4	51.1
	6.00	8	3.2	8.5	59.6
	7.00	7	2.8	7.4	67.0
	8.00	13	5.2	13.8	80.9
	9.00	5	2.0	5.3	86.2
	10.00	4	1.6	4.3	90.4
	11.00	2	.8	2.1	92.6
	12.00	2	.8	2.1	94.7
	13.00	4	1.6	4.3	98.9
	14.00	1	.4	1.1	100.0
	Total	94	37.6	100.0	
Missing	System Missing	156	62.4		
	Total	156	62.4		
Total		250	100.0		

If caregivers recorded a yes response to their child having expressed an interest and or fascination in fire they were also asked to describe their child's interest in fire as: mild, moderate or extreme and then to explain there response.

Table 30 shows the frequency of caregivers that described their child's fire interest as mild, moderate and extreme. Of the total responses (97) there was variation in responses, with the larger proportion reporting a mild interest in fire (49.6%), moderate interest was reported as 9.2% and extreme as 2.0%.

Table 30: Total sample frequency of caregivers describing children's fire interest as mild, moderate and severe

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	mild	124	49.6	81.6	81.6
	moderate	23	9.2	15.1	96.7
	extreme	5	2.0	3.3	100.0
	Total	152	60.8	100.0	
Missing	99.00	1	.4		
	System Missing	97	38.8		
	Total	98	39.2		
Total		250	100.0		

Caregiver's perspective of why children play with fire or fireset

Caregivers were asked to identify those responses that best describe why children play with fire or fireset. The range of responses included fun, curious, boredom, get attention, destroy something, angry, hurt someone, peer pressure, experiment, showing off and to record other reasons. Table 31 shows the frequency of caregivers perceptions of why children play with fire. Caregivers were asked to identify from a range of motivators and to record any others. Caregivers were able to record multiple responses. Of the total number of responses (460), a greater proportion (101) of caregivers reported that fun was a motivator for fireplay, 74 reported curiosity and experimentation respectively. These three responses collectively are noteworthy with some variability noted between each variable. Of the remaining responses frequency

scores were boredom 54, receive attention 50, peer pressure 32, showing off 22, anger 16, destroy something 14, children do not fireplay and fascination 5, to burn rubbish 3, hurt someone and caregiver does not know 2 respectively and alcohol and drug and playing 1. Cross-tabulation of sample groups was not valid, as a greater proportion of responses could not be identified from the document content analysis.

Table 31: Total sample frequency of caregiver's perspective of children's motivation for fireplay

Motivation for child fireplay	**Number of responses**
Fun	105
Curious	74
Experiment	74
Boredom	54
Receive attention	50
Peer pressure	32
Showing off	22
Anger	16
Destroy something	14
Children do not fireplay	5
Fascinated	5
To burn rubbish	3
Hurt someone else	2
Caregiver does not know	2
Alcohol and drug	1
Playing	1
Total	460

Caregivers reports of family member having set a deliberate fire causing property damage and or injury to self or others

Caregivers were asked if any member of immediate or extended family had set a deliberate fire which had resulted in property damage, injury to self or others. The range of responses were yes, no and unknown. Table 32 shows the frequency of responses for family members having deliberately set fires. Of the total number of

responses (250), a greater percentage of caregivers (82.4%) reported no, yes responses were 13.2% and unknown 4.4%.

Table 32: Total sample frequency of family members having deliberately set fires

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	33	13.2	13.2	13.2
	no	206	82.4	82.4	95.6
	unknown	11	4.4	4.4	100.0
	Total	250	100.0	100.0	
Total		250	100.0		

Table 33 represents a cross-tabulation of the number of immediate and extended family members that have deliberately firelit and groups: non fireplay/setting, non fireplay/setting (prior incidents), fireplay and firesetting. The total number of participants (questionnaire and document content analysis) consists of 250. Of the fireplay total group of 56, 10 family members are reported to have deliberately set fires, 42 have not and 4 responses are reported as unknown. The firesetting group total of 48 consists of 8 persons having deliberately set fires, 35 have not and 5 responses are reported as unknown. The non-fireplay/setting group total of 146, 15 family members is reported to have deliberately set fires and 129 persons have not and 2 responses are reported as unknown. The fire play and setting group for both sample totals (community and Fire Service) has a bigger proportion of family members having deliberately set fires (20%) than the non fireplay/setting group (10%).

Table 33: Cross-tabulation of operationally defined group and family members having deliberately set fires

Count

		deliberate			
		yes	no	unknown	Total
GROUPS	Fireplay female	1	4		5
	Fireplay male		2		2
	Firesetter female	3			3
	Firesetter male	2	4	1	7
	Non female	6	69	1	76
	Non male	9	60	1	70
	Non prior female	2	9	3	14
	Non prior male	6	17		23
	Transalpine fireplay female		2		2
	Transalpine fireplay male	1	8	1	10
	Transalpine firesetter female	2	3	1	6
	Transalpine firesetter male	1	28	3	32
Total		33	206	11	250

Children that have played with matches, lighters, fire or set fires in the last twelve months

Primary caregivers were asked to identify whether their child had played with matches, lighters or set fires in the last 12 months. The range of responses included yes and no. Table 34 shows the frequency of children who have played with matches, lighters, and fire or set fires in the last 12 months. Of the total sample (250) the most frequently reported response was no (73.2%) and yes (26.8%). Of the total sample no responses were missing and 250 responses were available for analysis.

Table 34: Total sample frequency of children who have played with fire in the previous twelve months

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	67	26.8	26.8	26.8
	no	183	73.2	73.2	100.0
	Total	250	100.0	100.0	
Total		250	100.0		

If caregivers recorded a yes response to their child having played or set fire in the last twelve months they were asked to identify whether this was the child's first fireplay or setting incident, the range of responses were yes or no. If participants had responded no to question 11 of the questionnaire they were instructed to proceed to question 29. Participants responding with a yes response continued through the questionnaire.

Participants that responded yes to children having played or setting fires in the last 12 months were asked to identify by a yes or no response to whether this incident was the child's first fireplay or firesetting incident. Table 35 shows the number of children who are reported to have firelit on more than one occasion. The total sample response (67) shows there was a greater percentage of children who had firelit previously (71.6%) than not (28.4%).

Table 35: Total sample frequency of children who have firelit on more than one occasion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	19	7.6	28.4	28.4
	no	48	19.2	71.6	100.0
	Total	67	26.8	100.0	
Missing	System Missing	183	73.2		
	Total	183	73.2		
Total		250	100.0		

If caregivers recorded a no response to question 11a – was this the child's first fireplaying or firesetting incident? They were also asked to identify in question 11b how many incidents the child had been involved in, in the previous 12 months. Table 36 shows the total sample number of children who have firelit on two or fewer occasions or three or more incidents. The total sample response (66) shows there was a greater percentage (71.2%) of children who had firelit on two or fewer occasions than three or more occasions (28.2%).

Table 36: Total sample frequency of children who have firelit on two or fewer or three or more occasions within the previous 12 months.

Frequency of incidents	**Percentages**
Two or fewer incidents	71.2%
Three or more incidents	28.2%
Total	100%

If caregivers recorded a no response to question 11a – was this the child's first fireplaying or firesetting incident? They were also asked to identify in question 11c whether the fireplay or setting caused or threatened to cause significant injury, property damage both or no damage. Table 37 shows the total sample number of children who are reported to have caused or threatened to cause damage by fireplay or setting. The total sample response (65) shows there was a greater percentage (71.7%) of children who had caused or threatened to cause property damage, 26.3% were reported to have caused or threatened to cause no damage, 2% had caused or threatened to cause both significant injury and property damage. There was no responses recorded for significant injury.

Table 37: Total sample frequency of children who are reported to have caused or threatened to cause damage by fireplay or firesetting

Property damage caused or threatened	**Percentage**
Significant injury	Nil
Property damage	71.7%
Significant injury and property damage	2%
No damage caused	26.3%
Total	100%

Children's involvement with the New Zealand Fire Service for behaviour relating to fire

Caregivers were asked to identify by a yes, no or unknown response if children had been involved with the New Zealand Fire Service for behaviour relating to fire. Of the total sample (68) a greater percentage (91.2%) of children had not been seen and a small percentage (8.8%) had been seen by a member of the New Zealand Fire Service for behaviour relating to fire. Table 38 shows the frequency for the total sample of children who have had previous involvement with the New Zealand Fire Service.

Table 38: Total sample frequency of children who have had previous involvement with the New Zealand Fire Service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	6	2.4	8.8	8.8
	no	62	24.8	91.2	100.0
	Total	68	27.2	100.0	
Missing	System Missing	182	72.8		
	Total	182	72.8		
Total		250	100.0		

Object ignited

Caregivers were asked to consider the fire incident in question 11 and record the object that was ignited from the range of responses: nothing, paper products, grass/leaves, other flammable materials and flammable liquids. Table 39 shows the total number of types of objects ignited by children. The total sample response (131) shows there was a greater percentage (38.3%) of flammable materials ignited, percentage of paper products ignited was 32.8%, grass and leaves 23.9%, no objects were ignited for 4.5% and flammable liquids no responses were recorded. However the variability across flammable materials, paper products and grass and leaves was clearly not different.

Table 39: Total sample frequency of types of objects ignited by children

Objects ignited	**Percentage**
Nothing	4.5%
Paper products	32.8%
Grass and leaves	23.9%
Other flammable materials	38.8%
Other flammable materials	Nil
Total	100%

Location of fire materials

Caregivers considering the fire incident in question 11 were asked to record whether the fire incident was in the child's own home or at another property. Table 40 shows the total number of fires set in the child's home or another property. The total sample response (64) shows there was a difference in fire settings however it was not considerable. Children reported to set fires at their own property were 54.7% of the total sample and firesetting in others property was 45.3%.

Table 40: Total sample frequency for fires set within own and others property

Property site of firesetting	**Percentage**
Own property	54.7%
Others property	45.3%
Total	100

Material sources

Caregivers considering the fire incident in question 11 were asked to record where the materials for firelighting had been accessed from, the range of responses included home, school, shops, friend and other. Table 41 shows the total number of sources for each response. The total sample response (124) shows there was a considerable difference in source of materials. Caregivers report that 71% of children accessed the materials from home, 12.1% from shops, 10.8% from friends and 6% from school. Of the total sample (124) 78.5% of caregivers reported that children went out of their way to acquire the materials and 21.5% found materials easily.

Table 41: Total sample frequency for source of fire materials

Source of materials	**Percentage**
Home	71%
Shops	12.1%
Friends	10.8%
School	6%
Total	100%

Ignition source

Caregivers considering the fire incident in question 11 were asked to record what ignition source was used in the incident, the range of responses included matches, lighters, both matches and lighters, unknown and to record others. Multiple responses were recorded. Table 42 shows the total number of ignition sources for each response. The total sample response (67) shows there was a proportional difference in ignition sources. Caregivers report that 59.7% of children used lighters, 38.8% used matches and 1.5% used the stove as an ignition source.

Table 42: Total sample frequency for ignition source

Ignition source	**Percentage**
Matches	38.8%
Lighters	59.7%
Stove	1.5%
Total	100%

Locality of fireplay and setting behaviour

Caregivers considering the fire incident in question 11 were asked to record the location of the fire, the range of responses included home, school, park, and to record others. Table 43 shows the total number of locations for each response. The total sample response (124) shows there was a considerable difference in location of fires. Caregivers report that 59.7% of children lit fires at home, 17.9% at school, 14.9% at parks, 4.5% in community facilities and 1.5% in pensioner flats and vehicles respectively. Of the total sample (67) 59.7% of fires had been lit indoors and 40.3% outdoors.

Table 43: Total sample frequency of fire site location

Location of fire	**Percentage**
Home	59.7%
School	17.9%
Park	14.9%
Pensioners flats	1.5%
Community facilities	4.5%
Vehicles	1.5%
Total	100%

Month of incident

Caregivers considering the fire incident in question 11 were asked to record the month of the year that the incident occurred, the range of responses were each month of the calendar year. Table 44 shows the total number of incidents for each month. The total sample response (67) shows there was a marginal difference in the incident months for the year. Caregivers report that 13.4% of children firelit in August, 11.9% in March and April respectively and 10.4% in the month of December. All of these months fall within school term breaks for schools within New Zealand.

Table 44: Total sample frequency for month of fire incident

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	January	4	1.6	6.0	6.0
	February	6	2.4	9.0	14.9
	March	8	3.2	11.9	26.9
	April	8	3.2	11.9	38.8
	May	6	2.4	9.0	47.8
	June	4	1.6	6.0	53.7
	July	3	1.2	4.5	58.2
	August	9	3.6	13.4	71.6
	September	5	2.0	7.5	79.1
	October	2	.8	3.0	82.1
	November	3	1.2	4.5	86.6
	December	7	2.8	10.4	97.0
	Unknown	2	.8	3.0	100.0
	Total	67	26.8	100.0	
Missing	System Missing	183	73.2		
	Total	183	73.2		
Total		250	100.0		

Time of incident

Caregivers considering the fire incident in question 11 were asked to record the time of the fire incident. The range of responses were 7-9am, 9-11am, 11-1pm, 1-3pm, 3-5pm, 5-7pm, 7-9pm, 9-11pm and to record others. Table 45 shows the time of fire incidents. The total sample response (67) shows there was clearly a difference when clustering incident times into afternoon (1-7pm). Caregivers report that 29.9% of children lit fires between 3-5pm, 20.9% between 1-3pm and 17.9% from 5-7pm.

Table 45: Total sample frequency for time of fire incident

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	7-9am	1	.4	1.5	1.5
	9-11am	2	.8	3.0	4.5
	11-1pm	6	2.4	9.0	13.4
	1-3pm	14	5.6	20.9	34.3
	3-5pm	20	8.0	29.9	64.2
	5-7pm	12	4.8	17.9	82.1
	7-9pm	7	2.8	10.4	92.5
	9-11pm	3	1.2	4.5	97.0
	0500	2	.8	3.0	100.0
	Total	67	26.8	100.0	
Missing	System Missing	183	73.2		
	Total	183	73.2		
Total		250	100.0		

Supervision provided at the time of the incident

Caregivers considering the fire incident in question 11 were asked to record who was providing supervision at the time of the fire incident. The range of responses were primary caregiver, adult sitter, youth sitter, sibling, nobody, unknown, school, early childhood centre and to record others. Table 46 shows who provided supervision at the time of the incident. The total sample response (67) shows there was clearly a difference in provider of supervision. Caregivers report that 88.1% of children lit fires when caregivers were providing supervision and 6% when schools provided the supervision.

Table 46: Total sample frequency of supervision provided at the time of the incident

	Frequency	Percent	Valid Percent	Cumulative Percent
primary caregiver (parent)	59	23.6	88.1	88.1
adult sitter	1	.4	1.5	89.6
nobody	1	.4	1.5	91.0
unknown	2	.8	3.0	94.0
school	4	1.6	6.0	100.0
Total	67	26.8	100.0	

Caregiver's perceptions of fireplay or firesetting incident being intentional or accidental

Caregivers considering the fire incident in question 11 were asked to record their perception of the fireplay or setting incident as being intentional or accidental. The

range of responses was intentional, accidental or unknown. Table 47 shows caregivers perceptions of incidents being intentional or accidental. The total sample response (67) shows there was a difference in caregiver's perceptions of children intentionally or accidentally lighting fires. Caregivers report that 52.2% of children intentionally lit fires and 40.3% considered the incident as accidental, however the finding is not salient. Of the intentional fire incident responses an equivalent number of responses (47.8%) were recorded for caregiver's beliefs that children set fires to harm or destroy property but not to injure persons (4.4%). Of the total sample (67) of caregivers 35 reported that they believed that the child planned to set a fire or play with matches and lighters, 27 did not consider the action planned and 5 did not know.

Table 47: Total sample frequency of caregiver's perceptions of accidental and intentional firesetting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	intentional	35	14.0	52.2	52.2
	accidental	27	10.8	40.3	92.5
	unknown	5	2.0	7.5	100.0
	Total	67	26.8	100.0	

Child's behaviour after fireplay or setting behaviour

Caregivers considering the fire incident in question 11 were asked to record the children's behaviour after fireplay or firesetting behaviour. The range of responses included denied involvement, lied about involvement, hid, extinguished the fire, sought help, did nothing, was embarrassed or record other responses. Table 48 shows children's behaviour after the incident. The total sample response (67) shows there was a considerable difference in children's behaviour after the firesetting incident. Caregivers report that 33 children did nothing to draw attention to the behaviour, 11

denied involvement, 8 extinguished the fire, 4 sought help and the remaining response differences were marginal.

Table 48: Total sample number of children's behaviour after fire setting

Children's behaviour after firesetting	**Number of responses**
Denied involvement	11
Lied about involvement	2
Hid	4
Extinguished the fire	8
Sought help	2
Did nothing	33
Was embarrassed	1
Moody	1
Admitted to the behaviour	2
Panicked	3
Total	

Resulting fire damage and intervention

Caregivers considering the fire incident in question 11 were asked to record the resulting fire damage from children firesetting and to record who attended the fire.

The range of responses for resulting property damage included no damage, minor property damage, extensive property damage, personal injury and to record others. Table 49 shows resulting fire damage from children's firesetting. The total sample response (67) shows there was minimal difference in resulting damage of children's firesetting behaviour. Caregivers report that 50.7% of incidents caused minor property damage and 44.8% no damage.

The range of responses for fire incident intervention involved included Fire Department, Police Department, other adult intervention and to record others. Table

50 shows the total sample frequency of required intervention for the fire incident. The total sample response (67) shows there was considerable difference in who attended to the fire, parental or other adult intervention was 59.7% of the responses, in 25.4% of the incidents the Fire Department attended and 11.9% the Police attended.

Table 49: Total sample frequency of damage resulting from firesetting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no damage	30	12.0	44.8	44.8
	minor property damage	34	13.6	50.7	95.5
	extensive property damage	3	1.2	4.5	100.0
	Total	67	26.8	100.0	

Table 50: Total sample frequency of required intervention for fire incident

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	fire department attended	17	6.8	25.4	25.4
	police attended	8	3.2	11.9	37.3
	other adult intervention	40	16.0	59.7	97.0
	other	2	.8	3.0	100.0
	Total	67	26.8	100.0	

Peer Group Behaviours

Caregivers considering the fire incident in question 11 were asked to record whether the child was with another child(ren) at the time of the fire setting incident. The range of responses included yes, no and unknown. Table 51 shows the percentage of children with peers at the time of the incident. The total sample response (67) shows there was a considerable difference in children engaging in fireplay behaviour when they were with peers (70.1%). Solitary firesetting behaviour was recorded for 28.4% of the responses. Of the total sample reported (47) 57.4% of children were with friends when engaging in fireplay behaviour, 38.3% with siblings and 2.1% with neighbours and friends respectively.

Caregivers were also asked to record by a yes or no response whether they believed the child was pressured or coerced into fireplay or firesetting behaviour by their peers. Of the total sample (67) 68.7% of caregivers did not report that they believed their child was coerced or pressured into fireplay behaviour by their peers however 31.3% did report coercion or pressure from peers (Table 52).

Table 51: Total sample frequency of firesetting behaviour including peers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	47	18.8	70.1	70.1
	no	19	7.6	28.4	98.5
	unknown	1	.4	1.5	100.0
	Total	67	26.8	100.0	

Table 52: Total sample frequency of caregiver's perceptions of children being pressured or coerced into fire behaviour by peers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	21	8.4	31.3	31.3
	no	46	18.4	68.7	100.0
	Total	67	26.8	100.0	

Caregiver's response to child firesetting and recidivism

Caregivers considering the fire incident in question 11 were asked to record their response to the fireplay or setting behaviour when it came to their attention. The range of responses included punished the child, rewards offered for not fireplaying, threat of punishment, safer opportunities provided and other responses recorded. Table 53 shows the total sample of caregivers response to children's firesetting behaviour. The total sample response (67) shows there was a considerable difference in caregiver's responses to the firesetting behaviour. The largest proportion of caregiver's reported that they punished the child for their behaviour (51.6%), a number of children were referred to the Fire Service education programme as a result of their behaviour (23.4%) and a smaller proportion where threatened with future punishment in the event of further incidents (12.5%). The caregivers reported that after addressing the behaviour with the children a greater proportion (88.1%) of children did not continue to play with matches, lighters or set fires (Table 54).

Table 53: Total sample frequency of caregiver's response to children's firesetting behaviour

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	punished	33	13.2	51.6	51.6
	threat of punishmnet	8	3.2	12.5	64.1
	safer opportunities provided	6	2.4	9.4	73.4
	counselling	1	.4	1.6	75.0
	spoken to by parent	1	.4	1.6	76.6
	Fire Service programme	15	6.0	23.4	100.0
	Total	64	25.6	100.0	

Table 54: Total sample frequency of children's continued fireplay behaviour after caregiver's intervention

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	4	1.6	6.0	6.0
	no	59	23.6	88.1	94.0
	unknown	4	1.6	6.0	100.0
	Total	67	26.8	100.0	

Events attributing to children's behaviours

Primary caregivers were asked to identify whether there had been events in the last 12 months that could have attributed to the child's fireplay or setting behaviour. The range of responses included yes, no and unknown. Of the total sample (66) the most

frequently reported response by caregivers was no (63.6%) then yes response (34.8%) and a very small percentage did not know (1.5%). Of those responses reporting a yes to events within the previous 12 months a considerable number (52.2%) identified family problems as a contributing factor to the child's behaviour. Table 55 shows the range of events that caregivers consider may have attributed to the behaviour.

Table 55: Total sample frequency of events potentially contributing to children's firesetting behaviours

Events in child's life	**Percentage**
Family problems	52.2%
Child abuse	21.7%
Death within the family	8.7%
Moving house	4.5%
School problems	4.3%
Alcohol and drug issues (parent)	4.3%
Sickness	4.3%
Angry at self or someone else	0%
Total	100%

Community services and intervention

Primary caregivers were asked to identify whether they had approached an agency for assistance regarding their child's fireplay or firesetting. The range of responses included yes, no and also identified those initial services that had referred the child to the New Zealand Fire Service. Of the total sample the most frequently reported response by caregivers was yes (51.9%) they had approached an agency for support. The most frequently reported response for self-referral was the caregiver's desire to seek support and assistance (67.6%) for the child's firesetting behaviour (Table 57). A considerable proportion of caregivers had made contact initially with Children,

Youth and Family Service (71%) and 82% of those caregivers reported that the initial contact they received was to be referred onto another service. The Police were the primary service identified by caregivers as having made referrals to the Fire Service (24.6%) on behalf of the child and family. Secondly, Fire department personnel had also been noted as referring children to the Fire Service for intervention (4.6%) and referrals from Children, Youth and Family Service and health services were reported to be 1.5% respectively. A percentage of parents (15.9%) had also reported that they had not made any contact with services (Table 56).

Table 56: Total sample frequency of agencies contacted and support provided

Initial approach for agency support	**Percentage**
Caregiver made initial response	51.9%
Police made initial referral to Fire Service	24.6%
No contact made by caregivers	15.9%
Fire Department made initial referral to Fire Service	4.6%
Health services made initial referral	1.5%
CYFS made initial referral	1.5%
Total	100%

Table 57: Total sample frequency of caregiver's reason for seeking referrals

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	fireplay increased	7	2.8	11.3	11.3
	concern about childs wellbeing	4	1.6	6.5	17.7
	seek support/assistance	42	16.8	67.7	85.5
	99.00	9	3.6	14.5	100.0
	Total	62	24.8	100.0	

Comments shared by caregivers about children's fireplay or firesetting behaviour.

The final question of the questionnaire invited parents to share any comments they would like to make, or share any information about their child and the fireplay or firesetting behaviour. Of the total response sample (100) 27% of caregivers reported a need for information and that education is the key to reducing the incidence of fireplay and increasing child safety for example:

> ... I think that education on fire safety is fire important! Education is primarily the parent's responsibility but needs to be supported by outside influences, but there does need to be more parent education...

> ... we have attempted to educate our child on the benefits and enjoyment that controlled fire can provide while at the same time highlighting the dangers...

> ... I teach my daughter that it is dangerous to play with

fire. I'm not sure what is a suitable age to teach fire drills...

Caregivers responses ranged from children having no interest in fire or described the child as having 'a healthy interest' (collectively 26%) for example:

> ... there is no 'behaviour', normal balanced children would never go and set a fire...

> ...my daughter has a "healthy" attitude to fire, she has always been supervised and now she is keen to take on responsibilities like lighting the fire...

> ... my child shows no abnormal behaviour towards fire as it is a relatively normal part of her life...

> ... my child has a healthy respect for fires potential danger...

Caregivers also reported providing safe environments for children so that they could experience and experiment with fire safely (22%) for example:

> ... it doesn't matter whether lighters, matches or other fire starters are locked away or not. Inquisitiveness always takes over and they want to know what is on that high shelf. The more you say no the more they want to try it. The way we see it is, if you are honest and let them try it regularly under supervision and inquisitiveness and wonder will fade...

> ... my son has been lighting our log burner at appropriate times since before he started school. He was taught how to set the fire properly and how to light it safely and how to put the wood on safely. To date we have had no problems

regarding fires...

> ... young people learn by example and good role models. I love to work with fires, camp fires, rubbish etc. I learnt from my father on the farm. The same place I will teach my son when he is older...

A small percentage of caregivers (15%) reported examples of children and adult fire behaviour. These behaviours were wide ranging and included children being exposed to fire by adults, holding hands close to flames, children placing objects in heaters and the influence of adult and others behaviour on children. For example:

> ... my son said the reason he would light something would be to show off, because his friends said to or to destroy something. He also said he wouldn't mind being a fire fighter when he grows up!...

> ... knowing just how hot, how dangerous and how uncontrollable fire is. Putting a little hand close enough to the heat to feel uncomfortable is in my experience just enough...

> ... a hand, a little close to a fire will cause minor discomfort and a long term respect for it...

> ... a child needs to know what a stove or fire can do to them, like putting a warm match that has been blown out on their hand when they are little. This is what I did to my son and he has never touched a match again...

> ... his father likes to experiment with fire often _ is watching...

> ... when my children played with matches they had to get a chair, climb on the bench and on tippie toes reach for the matches.

When they were caught they were very embarrassed. But the next day the youngest put a cardboard cylinder into the gas heater 'til it caught fire. We really don't know what to do…

… when my son was 12 he was sent to bed and in anger he lit a plastic toy under his blankets. His 3 year old brother was asleep beside him in the bed they shared…

Discussion

From the myth of Prometheus to songs around the bonfire, fire has always held a strong fascination with humankind. It is quite likely that what today we tend to regard as the only natural human reaction to fire, is based to a large extent upon our own experiences with fire in modern society. The ways in which fire manifests itself to people have changed over time, as have the dangers it poses and the fear it arouses. We are nowadays accustomed to strongly regulated and highly inhibited relations with fire – so much so that we may overlook the possibility that fears which strike us as 'natural' and 'rational' may be the result of the very process of domestication of fire.

Prevalence of fireplay and firesetting behaviour among children has been somewhat difficult to ascertain as national and international findings vary considerably. Present findings suggest that nearly half of all children between three and fourteen years of age fireplay or fireset. The study examined the perspectives of caregivers and the presence of characteristics that distinguished between the groups of children who do or do not engage in fireplay or firesetting behaviours. Within study operationally defined groups a child who does not engage in fireplay or fire setting behaviour (non fireplay/setter, FPF & FPM) is just as likely to be male or female, aged between seven and ten years and of New Zealand European ethnicity. The child is likely to reside with both parents, who are also much more likely to not smoke and to be aware of fire safety education programmes. A child who engages in fireplay behaviour (FPF & FPM) is a child who is nearly twice as likely to be male, aged between seven and ten years of age and of New Zealand European ethnicity. The male child is also five times more likely than females to have been referred to the New Zealand Fire Service for fire play behaviour. The child is likely to reside with either his or her mother or both parents, who are more likely to not smoke and to be aware of fire education programmes. A child who engages in firesetting behaviour (FSF & FSM) is a child who is four times more likely to be male, aged between seven and ten years of age and of New Zealand European ethnicity. The child is fifteen times more likely to have been referred to the New Zealand Fire Service for behaviour relating to fire than children who fireplay. The child is nearly twice as likely to reside with their mother, who is twice as likely to smoke and

to be aware of fire education programmes. Within both fireplay and firesetting groups a quarter of extended family members have engaged in firesetting behaviours which are known to others. Present findings suggest that the following may usefully differentiate between children who do or do not fireplay or fireset: gender, family structure, caregivers that smoke cigarettes and extended family members having deliberately lit fires. Those findings that may not be so useful: ethnicity and caregivers awareness of fire education programmes.

The characteristics of children who fireplay or set in the present study can be compared in some respects to those described in other studies. For example, major findings suggested that firesetters evinced greater delinquency, cruelty and hyperactivity than their non-firesetting peers (Kolko et al, 1985; Kuhnley et al, 1982; Stewart & Culver, 1982). However, the present study has not demonstrated children who fireplay or fireset as more aggressive or socially withdrawn or inept than their peers. Clearly marginal differences within operationally defined groups were reported for internalising and externalising behaviours, suggesting that caregivers of children who fireplay or fireset did not perceive their child as socially withdrawn or inept (Table 14, 15, 16, 17, and 18). However, such findings may suggest that fireplay or firesetting behaviour may occur in the context of covert and non- aggressive behaviours. The absence of differences in behaviours may reflect the small number of study measures, and the use of retrospective responses to identify children who fireplay or fireset may make isolation of homogenous groups somewhat difficult. Additional research is needed to delineate the nature and extent of peer social relationships with children who fireplay or fireset. Epidemiological studies have also highlighted the extent of co-morbidity among childhood disorders. The present findings suggest that children were more likely to experience headaches and bedwetting than disorders listed in the Diagnostic Statistical Manual –IV (Table 9). However, of the four conditions Attention Deficit Disorder, Conduct Disorder, Learning Difficulties and Attention Deficit Hyperactivity Disorder, 17 from 69 responses were positive with a higher proportion of responses recorded for Conduct Disorder (Table 9). Does this represent co-morbidity between essentially separate conditions, the coming together of dimensional risk factors, or does it reflect the varied manifestations of a single syndrome? It is important to test competing

hypotheses on these associations, if only because the answers will shape the research strategies most likely to be successful in determining the crucial risk processes for fireplay and firesetting behaviour. Many areas remain to be evaluated in studies to identify descriptive characteristics of children who fireplay and fireset, to provide the basis for understanding the emergence and diagnosis of dysfunction.

Children especially appear attracted to fire. Their innate curiosity and desire to learn about the world around them, requires that they must learn to understand that fire has the ability to hurt and destroy. The specific motives for fireplay and firesetting behaviour have been widely described and reported to be quite diverse. Even though the majority of child-set fires are reported to have started out of curiosity, not malice, the damage they cause, both in economic and human costs, is real and devastating. Studies that have focussed specifically on children's motivation for fireplay and firesetting have offered several explanations, including curiosity, experimentation, mischief, vandalism, revenge, anger, cries for help, attention, boredom, peer pressure, frustration, heroism, irresistible impulse and fetishism (Faulk, 1982; New Zealand Fire Service, 2000). Caregiver's reports of why children play or set fires correspond with the literature; these are curiosity and experimentation (Table 31). The present findings suggest that caregivers primarily perceive children starting fires for fun although this motivation for fireplay and firesetting has not been discussed within existing literature. The relationship between exposure to fire at an early age and its influence on the subsequent emergence of firesetting behaviour requires further investigation. For example, 41.5% of children first showed an interest in and or fascination with fire at the age of two to four years (Table 29), with some fathers of fireplay and firesetting children being involved in fire in some way in their occupations (e.g., firefighter, farmer). This suggests that fire interest and experience develop very early in life.

In addressing the need to describe fireplay and firesetting behaviour studies have reported the frequency, site, social context and source of ignition and materials. Children's experiences and opportunities to use fire for specific purposes and to have access to fire starting materials differ for a number of reasons. Study findings suggest that the child's home is more likely to be the location of the fire (Table 43) and property damage is likely to result from the behaviour (Table 37). The primary source

of materials for fireplay and firesetting is the home, with peers providing materials that constitutes a small proportion of the total material sources (Table 41). The fires ignition source is more likely to be lighters and matches (Table 42) which are kept on a shelf, in a drawer or cupboard (Figure 3). The fire is more likely to occur in school holiday months (Table 44), during the hours of 1300 and 1900 hours (Table 45) and with primary caregivers providing supervision at the time of the fire (Table 46). Children are also more likely to have fire lit on two or fewer occasions (Table 36) and immediately after the fireplay or firesetting behaviour do nothing to draw attention to the fire (Table 48). The New Zealand Fire Service (2000) suggest that the availability of fire supplies and accessibility to fire-related situations may include the presence of both peers and adults who smoke or play with fire, peer pressure to participate in group firesetting, or the use of materials carelessly left by parents. Matches and lighters may be more readily available in smoking households and previous studies have suggested that accessibility to ignition sources is a major factor in children firesetting. Present findings suggest that the accessibility of matches and lighters is a contributing factor to children's firelighting with 98.5% of fires being lit by lighters or matches (Table 42). Furthermore, imitation of the smoking behaviour may occur more often in homes where caregivers smoke. Present findings suggest that the most prevalent smokers were in the homes of children who fireplay or fireset (Table 21).

The major obstacle in dealing with the family of a "firesetter" is parental denial (Surrey Fire Service, 1994). Example of denial is the present findings that suggest that caregivers are more likely to consider fun as a motivator for children playing or setting fires (Table 31) and to describe children's fire interest as mild (Table 30). Findings suggest there is little variation in caregivers perceptions of fireplay and firesetting being accidental or intentional, planned or unplanned (Table 47). Caregivers were also more likely to believe that their child had not been pressured or coerced into fireplay or firesetting behaviour by their peers (Table 52). Although over half of the children who were reported to have fireplayed or fireset had been with peers at the time of the fire (Table 51). Caregivers need to realise that there is a problem before fireplay and firesetting behaviours can be addressed, however parental denial is normal and widely reported because many do not want to admit that there may be a problem with their

child (Canter, 1990). The co-operation level of the parent is very important because the probability of a child's fireplay or firesetting behaviour receiving intervention is directly associated with the parents wanting the problem addressed. The intervention of caregivers and appropriate agencies is crucial to providing "firesetters" with the help they need. The present findings suggest that initially half of the caregivers punished the child for the behaviour (Table 53) and most caregivers believed that children had not continued to fireplay or fireset after the caregivers intervention (Table 54). A quarter of the caregivers approached an agency for support and assistance for the child's firesetting behaviour (Table 57). Parents may downplay the significance of their children's involvement in fireplay and firesetting, because they do not view their child's behaviour as a problem and in need of assistance. Parents may also not want to view their child as emotionally troubled, in part because culturally it tends to reflect negatively on their parenting abilities, and society may view their children's firesetting behaviour as abnormal and label the child as such. Present findings suggest that over half of the caregivers believed that issues within the family had the ability to potentially contribute to children's firesetting behaviours (Table 55). Regardless of parental denial the value of involving parents in bringing about behaviour change is beyond dispute. Parental involvement has been a key features in programmes against smoking (Oei & Baldwin, 1992), and on child abuse (Briggs and Hawkins, 1994) and in support of sun protection (Pion, 1996). Surrey Fire Service (1994) suggests that many parents lack fire safety education and information and cannot provide their children with appropriate instruction. Parents may also fail to take the time to explain matches and lighters to young children, or to instruct older children in the purpose of firesetting tools. Parents often believe the myth that if their child does not know how to use fire-starting materials they will not attempt to use them. However, this lack of knowledge is often more dangerous than not to a curious child. The present findings suggest that a significant proportion of caregivers are aware of fire safety programmes and have taught their child about fire safety (Table 23, 24).

The most commonly cited sources of alternative influences are heredity and peers to children's behaviour, although some writers emphasise the relatively greater importance of concurrent environmental forces more generally (Collins, Maccoby,

Steinberg, Hetherington & Bornstein, 2000). Most developmental theories expect peer influences to be relatively weak during childhood and early adolescence and then increase in potency during the adolescent years (Brown, Clasen & Eicher, 1986; Thornberry, 1987). Having friends who engage in disapproved activities has been and continues to be a key factor in many explanations of delinquent behaviour. Research exploring the relationship between association with deviant peers and deviant behaviour overwhelmingly finds a strong correlation between these variables. Children who engage in deviant behaviour do seek out friends who engage in these behaviours, and this, in turn, leads to greater involvement in deviance (Swaffer & Hollin, 1995). Present findings suggest those who set fires in response to peer group pressure (Table 51, 52) also appear to correspond with group firesetters who set fires as vandalism (Goldstein, 1990; Swaffer & Hollin, 1995). However, associating with deviant peers is clearly not the only variable that is important in explaining deviant behaviour. An issue that warrants more attention is the possibility that life events may not affect children in the same way at every developmental period. It is likely that there are critical periods in which growth and stabilisation of specific types of behaviour take place. When development of those types does not occur or is disturbed, individuals may be more likely to show symptomatic behaviours at a later age period. Increasing evidence suggests that the first few years of life are crucial for the acquisition of pro-social skills and the outgrowing of "normal" oppositional behaviour (Loeber & Hay, 1994). Delays in the emergence of such behaviours may constitute the first steps toward entry into disruptive behaviours.

The influence of other variables such as advertising is also worthy of further consideration. For years, people have expressed concern regarding the effects of the media, and not least television, on their audiences, especially children. Violent and high- risk behaviour media content, has been a particular concern as to how such content may influence children. Studies suggest a correlation between the rising level of violence in daily life and the mimicking of high risk behaviours, particularly that committed by children, and the culture of danger and risk taking behaviours children encounter on television, in video films and in computer games (von Feilitzen, 1997). Recently the New Zealand Fire Service complained to the Advertising Standards

Complaints Board about a Burger King advertisement that they suggested had the potential to encourage children to mimic dangerous fire behaviour (Harper, 2000). The advertisement depicts a man whose sleeve has caught on fire while he is barbecuing. He then starts to scream and run around, with flames trailing after him and eventually falls into a child's paddling pool. Burger King was reported to regard the advertisement as slapstick humour and would not consider amending it. The Fire Service reported that companies such as Burger King are very influential with children and that the advertisement has the potential to undo that, which has been achieved, in promoting fire safe behaviour. Harper (2000) states that

> Just this week we've had a case of a little girl set on fire by another child. Children have a fascination with fire and we don't need advertisements which make light of a situation that is potentially lethal (p.1).

Summary

Fireplay and setting by children is a dangerous act that may result in grave consequences, including damage to property, injury to self and others, and death. Children who fireplay or fireset are by no means a single group with a single motivation, fireplay and setting is often a complex picture with diverse and overlapping motivations. Successful identification and intervention requires early detection, accurate assessment and appropriate intervention, but more importantly it requires recognition that children will engage in fireplay activities, seemingly regardless of prior warnings and teachings.

The last decade has brought important advances in both the conceptualisation of fireplay and firesetting behaviour and the study of causal processes. As a result, we are in a much better position for framing the questions to be addressed and in planning research strategy in order to test hypotheses. However as the literature and the present study have indicated, most of the fundamental issues have yet to be resolved. Perhaps most crucially, it remains unclear whether the main focus should be on fireplay and or firesetting or on lifestyle features involving fireplay and firesetting behaviour.

Further investigation is needed, to explore, using a self- report methodology, explanations of fireplay and firesetting in a group of both male and female children. We need to consider the use of children's own accounts as a primary data source in seeking to understand fireplay and firesetting behaviour, as in keeping with the strategy of employing the knowledge of "experts by experience" (Goldstein, 1990; Taylor & Smith, 2000).

As we look toward the future, we must acknowledge and address that each year children in New Zealand are fireplaying or firesetting, a behaviour that takes a toll on both people and property. Without doubt fireplay and firesetting behaviour is potentially dangerous and continues to threaten the wellbeing of our children and is most worthy of further investigation.

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References

Adler, R., Nunn, R., Northam, E., Lebnan, V., & Foss, R. (1994). Secondary prevention of childhood firesetting. *Journal of the American Academy of Child and Adolescent Psychiatry,* 33, (8), 1194-1202.

American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders (4th ed.).* Washington DC: American Psychiatric Association.

Bachelard, G. (1964). *The Psychoanalysis of Fire* (translated from the French, 1938), Boston: Beacon Press.

Bahr, P. (1997). When a child's fascination gets out of hand. Firesetting intervention for children. *Police Journal,* 78, (5), 1-3.

Bale, J., Sly, P., Jones, K., & Jackson, M. (1997). *1996 Fire Safety Survey.* Surrey: Fire Service City of Surrey.

Bandura, A. (1973). *Aggression: A social learning analysis.* Englewood Cliffs: Prentice Hall.

Block, J.H., Block, J., & Folkman, W.S. (1976). *Fire and children: Learning survival skills.* U.S.D.A. Forest Service paper (PSW-119). Berkeley: U.S. Forest Service.

Boling, L., & Brotman, C. (1975). A fire-setting epidemic in a state mental health care centre. *American Journal of Psychiatry,* 27, 188-196.

Bourget, D., & Bradford, J.M. (1989). Female arsonists: A clinical study. *Bulletin of the American Academy of Psychiatry and the Law,* 17, (3), 293-300.

Briggs, F., & Hawkins, R.M.F. (1994). Follow-up data on the effectiveness of New Zealand's national school based child protection program. *Child Abuse and Neglect,* 18, 635-643.

Brown, B.B., Clasen, D.R., & Eicher, S.A. (1986). Perceptions of peer pressure peer conformity dispositions, and self-reported behaviour among adolescents. *Developmental Psychology,* 22, 521-530.

Brown, M.J.A. (1995). *Background paper on New Zealand youth justice process.* Edinburgh: Paper presented at International Bar Association Judge's Forum Section on General Practice, 10-13 June.

Bumpass, E.R., Fragelman, F.D., & Brix, R.J. (1983). Intervention with children who set fires. *American Journal of Psychotherapy,* 37, 328-345.

Canter, D. (Ed.). (1990). *Fires and Human Behaviour* (2nd edition). London: David Fulton Publishers.

Children and Young Person's Act 1974

Children, Young Persons and their Families Act 1989

Coakes, S.J., & Steed, L.G. (1999). *SPSS: analysis without anguish.* Brisbane: John Wiley & Sons Australia Ltd

Cole, M., & Cole, S.R. (2001). *The development of children* (4th edition). United States of America: Worth Publishers.

Collins, W.A., Maccoby, E.E., Steinberg, L., Hetherington, E.M., & Bornstein, M.H. (2000). Contemporary research on parenting: The case for nature and nurture. *American Psychologist,* 55, (2), 218-232.

Darwin, C. (1989). The descent of man and selection in relation to sex (2nd ed., 1877). In P.H. Barrett., & R.B. Freeman., (Eds.), *The Works of Charles Darwin, 21-22,* London: William Pickering.

Elias, N. (1978). *The Civilizing Process. 1. The History of Manners* (translated from the German, 1939). New York: Urizen Books.

Faulk, M. (1982). Assessing dangerousness in arsonists. In J.R. Hamilton & H. Freeman (Eds), *Dangerousness: Psychiatric assessment and management.* Gaskell: Royal College of Psychiatrists.

Federal Emergency Management Agency. (1978). *Interviewing and Counseling Juvenile Firesetters: The Child under Seven Years of Age.* Los Angeles: Federal Emergency Management Agency.

Fine, S., & Louie, D. (1979). Juvenille firesetters: Do the agencies help? *American Journal of Psychiatry,* 136, 433-435.

Fineman, K.R. (1980). Firesetting in childhood and adolescence. *Psychiatric Clinics of North America, 3,* 483-500.

Fitzgerald, M., & O'Hanlon, M. (1991). The incidence of firesetting and associated psychopathology of children attending a child psychiatric outpatient clinic. *Irish Journal of Medical Science,* 160, (5), 128-129.

Freud, S. (1932). The acquisition of power over fire. *International Journal of Psychoanalysis,* 13, 405-410.

Garry, E.M. (1997). *Juvenile firesetting and arson.* Washington: Office of Juvenile Delinquency and Prevention.

Gaynor, J. (1991). Firesetting. In Lewis, M. (Ed.). *Child and Adolescent Psychiatry: A comprehensive textbook.* Baltimore: Williams & Wilkins, 591-603.

Geller, J.L. (1992). Pathological firesetting in adults. *International Journal of Law and Psychology,* 15, 283-302.

Gibson, T. (1999, April 6). Children who play with fire offered help. *The Dominion,* (2), p 8.

Gibson, T., & Henry, R. (1997). *Fire Service Intervention Programme: For the 1996/97 financial year.* Transalpine Fire Region: Unpublished.

Giordano, P.C., & Cernkovich, S.A. (1997). Gender and antisocial behaviour. In Stoff, D.M., Breiling, J., & Maser, J.D. (Eds.). *Handbook of Antisocial Behaviour.* United States of America: John Wiley & Sons, 496-510.

Goldstein, A.P. (1990). *Delinquents on Delinquency.* Chicago, IL: Research Press.

Goodale, J.C. (1971). *Tiwi Wives: A Study of the Women of Melville Island, North Australia.* Seattle: University of Washington Press.

Goudsblom, J. (1990). The impact of the domestication of fire upon the balance of power between human group and other animals. *Focaal, 13,* 55-65.

Grolnick, W.S., Cole, R.E., Laurenitis, L., & Schwartzman, P. (1990). Playing with fire: A developmental assessment of children's fire understanding and experience. *Journal of Clinical Psychology, 19,* (2), 126-135.

Gruber, A.R., Heck, E.T., & Mintzer, E. (1981). Children who set fires: Some background and behavioural characteristics. *American Journal of Orthopsychiatry,* 22, 370-374.

Hamling, J.E. (1995). A psychodynamic classification system for pathological firesetters with treatment strategies for each subgroup. *NZ Akiko,* pp1-12. Retrieved October 12, 1999 from the World Wide Web: http://www.ozemail.com.au/-jsjp/fireset.htm

Hanson, M., MacKay-Soroks, S., Atkinson, S., Staley, S.S., Shauna, S., & Poulton, L. (1994). Delinquent firesetters: A comparative study of delinquency and firesetting histories. *Canadian Journal of Psychiatry, 40,* 299-303.

Harper, K. (2000, March 2). *Fire is not a joking matter – media release.* Wellington: New Zealand Fire Service.

Harris, G.T., & Rice, M.E. (1996). A typology of mentally disordered firesetters. *Journal of Interpersonal Violence, 11*, (3), 351-354.

Heath, G.A., Hardesty, V.A., Goldfine, P.E., & Walker, A.M. (1983). Childhood firesetting: An empirical study. *Journal of the American Academy of Child Psychiatry,* 22, 370-374.

Hollingworth, L. (1994). *A literature review of the juvenile firesetter.* Surrey: Surrey Fire Service.

Jacobson, R.R. (1985). The subclassification of child firesetters. *Journal of Child Psychology and Psychiatry*, 26, (5), 769-775.

Jayaprakash, S., Jung, J., & Panitch. (1984). Multi-factorial assessment of hospitalized children who set fires. *Child Welfare,* 63, (1), 74-78.

Joseph, E.D. (1960). Cremation, fire and oral aggression. *Psychoanalytic Quarterly*, 8, 98-104.

Kafry, D. (1980). Playing with matches: Children and fire. In D. Canter (Ed.), *Fires and human behaviour* (pp. 47-61). Chichester, England: Wiley.

Kazdin, A.E., & Kolko, D.J. (1986). Parent psychopathology and family functioning among childhood firesetters. *Journal of Abnormal Child Psychology,* 14, 315-329.

Kaufman, I., Heins, L., & Reiser, D. (1961). A re-evaluation of the psychodynamics of firesetting. *American Journal of Orthopsychiatry, 31*, 123-136.

Kerlinger, F.N. (1973). *Foundations of behavior research.* New York: Rinehart and Wilson.

Kolko, D.J. (1983). Multicomponent parental treatment of firesetting in a developmentally disabled boy. *Journal of Behavior Therapy and Experimental Therapy,* 14, 349-353.

Kolko, D.J. (1985). Juvenile firesetting: A review and methodological critique. *Clinical Psychology Review, 5*, 345-376.

Kolko, D.J., & Kazdin, A.E. (1990). Matchplay and firesetting in children: Relationship to parent, marital, and family dysfunction. *Journal of Clinical Child Psychology,* 19, (3), 229-238.

Kolko, D.J., & Kazdin, A.E. (1991). Aggression and psychopathology in matchplaying and firesetting children: A replication and extension. *Journal of Clinical Child Psychology and Psychiatry*, 12, 535-550.

Kolko, D.J., & Kazdin, A.E. (1995). Children's descriptions of their firesetting incidents: descriptions and clinical correlates. *Journal of American Academy Child and Adolescent Psychiatry, 33*, 114-122.

Kolko, D.J., Kazdin, A.E., & Meyer, E.C. (1985). Aggression and psychopathology in childhood firesetters: Parent and child reports. *Journal of Consulting and Clinical Psychology,* 53, 377-385.

Krippendorff, K. (1980). *Content analysis: An introduction to its methodology.* London: Newbury Park & Sage.

Kuhnley, E.J., Hendren, R.L., & Quinlan, D.M. (1982). Firesetting by children. *Journal of the American Academy of Child Psychiatry,* 21, 560-563.

Leone, G.B. (1992). A psychiatric study of persons charged with arson. *Journal of Forensic Sciences, 37*, 535-550.

Lewis, N.O.C., & Yarnell, H. (1951). Pathological firesetting (pyromania). *Nervous and Mental Disease, Monograph* (No. 82). Nicholasville: Coolidge Foundation.

Loeber, R., & Hay, D.H. (1994). Developmental approaches to aggression and conduct disorder. In M. Rutter & D.H. Hay (Eds.), *Development through life: A handbook for clinicians.* Blackwell: Oxford, 488-515.

Lowenstein, L.F. (1989). The etiology, diagnosis and treatment of the fire-setting behaviour of children. *Child Psychiatry and Human Development,* 19, (3), 186-194.

Marshall, K., & Rossman, G.B. (1999). *Designing qualitative research: 3rd edition.* United States of America: Sage Publications.

Melbourne Fire and Emergency Services Board. (2000*). Juvenile Fire Awareness and Intervention Program.* Abbotsford: Melbourne Fire and Emergency Services Board.

Ministry of Education. (1998). *Directory of licensed early childhood services in New Zealand.* Wellington: Government Print.

Ministry of Education. (1998*). New Zealand schools and tertiary institutions directory.* Wellington: Government Print.

New Zealand Fire Service. (1996). *National statistics: Fire activity involving children/juveniles 0-16 years.* Wellington: New Zealand Fire Service.

New Zealand Fire Service. (2000). *Auckland 1998/99 report: Fire awareness and intervention programme.* Auckland: New Zealand Fire Service Auckland Region.

New Zealand Fire Service. (2000). *Fire awareness intervention programme: National statistics 1999-2000.* Wellington: New Zealand Fire Service.

New Zealand Fire Service Transalpine Region. (1999). *Juvenile intervention programme for Transalpine Region.* Christchurch: New Zealand Fire Service Transalpine Region.

New Zealand Fire Service Transalpine Region. (2000). *Juvenile intervention programme statistics.* Christchurch: New Zealand Fire Service Transalpine Region.

Oei, T.P.S., & Baldwin, A.R. (1992). Smoking education and prevention: A developmental model. *Journal of Drug Education,* 22, 155-181.

Patterson, G.R. (1982). *Coercive family process: A social learning approach.* (Vol. 3). Eugene, Oregon: Castalia.

Perle, C. (1977). *Prehistorie du feu.* Paris: Masson.

Pion, I.A. (1996). Educating children and parents about sun protection. *Dermatology Nursing,* 8, 29-35.

Raines, J.C., & Foy, C.W. (1994). Extinguishing the fires within: Treating juvenile firesetters. *Families in Society: The Journal of Contemporary Human Services,* 47, 595-607.

Reardon, K. (1990). Juvenile firesetters, a current perspective. *Firehouse,* 68-71.

Robson, C. (1997). *Real world research: A resource for social scientists and practitioner researchers.* Oxford: Blackwell.

Sakheim, G.A., & Osborne, E. (1986). A psychological profile of juvenile firesetters in residential treatment: A replication study. *Child Welfare,* 5, (5), 495-503.

Showers, J., & Pickrell, E. (1987). Child Firesetters: A study of three populations. *Hospital and Community Psychiatry,* 38, 495-501.

Siegelman, E.Y., & Folkman, W.S. (1971). *Youthful firesetters: An exploratory study in personality and background.* Springfield, Vancouver: U.S.D.A. Forest Service.

Statistics New Zealand. (1996). *New Zealand now crime tables.* Wellington: Statistics New Zealand.

Stekel, W. (1924). *Peculiarities of behavior.* (Vol. 2). New York: Boni & Liverwright.

Stewart, M.A., & Culver, K.W. (1982). Children who set fires: the clinical picture and a follow-up. *British Journal of Psychiatry,* 140, 357-363.

Strachan, J.C. (1981). Conspicuous firesetting in children. *British Journal of Psychiatry,* 138, 26-29.

Surrey Fire Service. (1994). *Addressing juvenile firesetting: Youth intervention program.* Surrey: Surrey Fire Service.

Swaffer, T., & Hollin, C.R. (1995). Adolescent firesetting: Why do they say they do it? *Journal of Adolescence, 18,* 619-623.

Taylor, N.J., & Smith, A.B. (2000). The way forward: incorporating children's perspectives in research, policy and practice. In Smith, A.B., Taylor, N.J., & Gollop, M.M. (Eds.). *Children's voices: Research, policy and practice.* (pp. 202-207). Auckland: Pearson Education New Zealand Limited.

Thornberry, T.P. (1987). Toward an interactional theory of delinquency. *Criminology,* 25, 863-891.

Trerise, K. (1999, October 15*). Fire service intensifies public education programme – media release.* Wellington: New Zealand Fire Service.

United States Fire Administration. (1999). Practice fire safety in your home. *Curious Kids Set Fires.* March.

Vandersall, T.A., & Weiner, J.M. (1970). Children who set fires. *Archives of General Psychiatry,* 119, 497-502.

von Feilitzen, C. (1997). Introduction. *News on Children and Violence on the Screen,* 1, 4.

Vreeland, R.G., & Waller, M.B. (1980). *Social interactions in families of firesetting children.* Montreal, Quebec: Paper presented at the Annual Meeting of the American Psychological Association.

Yarnell, H. (1940). Firesetting in children. *American Journal of Orthopsychiatry,* 10, 272-286.

Yung, B.R., & Hammond, W.R. (1997). Antisocial behaviour in minority groups: Epidemiological and cultural perspectives. In Stoff, D.M., Breiling, J., & Maser, J.D. (Eds.). *Handbook of Antisocial Behaviour.* United States of America: John Wiley & Sons, 496-510.

Appendix Contents

Appendix A
DSM-IV Classification: Attention-Deficit and Disruptive Behavior Disorders

Diagnostic criteria for 312.8 Conduct Disorder

A. A repetitive and persistent pattern of behaviour in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three (or more) of the following criteria in the past 12 months, with at least one criterion present in the past 6 months:

Aggression to people and animals
(1) often bullies, threatens or intimidates others
(2) often initiates physical fights
(3) has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun)
(4) has been physically cruel to people
(5) has been physically cruel to animals
(6) has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery)
(7) has forced someone into sexual activity

Destruction of property
(8) has deliberately engaged in fire setting with the intention of causing serious damage
(9) has deliberately destroyed others' property (other than by fire setting)

Deceitfulness or theft
(10) has broken into someone else's house, building or car
(11) often lies to obtain goods or favors or to avoid obligations (i.e., "cons" others)
(12) has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery)

Serious violation of rules
(13) often stays out at night despite parental prohibitions, beginning before age 13 years
(14) has run away from home overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)
(15) is often truant from school, beginning before age 13 years

American Psychiatric Association. (1994). Diagnostic and Statistical Manual of Mental Disorders (4th ed.,). American Psychiatric Association: Washington, DC, pp. 90.

Appendix B
New Zealand Fire Service National Statistics for Intervention Referrals

New Zealand Fire Service, Fire Awareness Intervention Programme, National Statistics Totals for Children that Fireplay/set Intervention Referrals (Fire region area and total number of referrals for the year).

Fire Service Region	**Number of Referrals**
Auckland	203
Bay Waikato	61
Transalpine	253
Southern	31
Eastern	9
Northland	34
Arapawa	92
Western	48
National Total	**731**

New Zealand Fire Service. (2000). *Fire Awareness Intervention Programme: National Statistics 1999-2000.* Wellington: New Zealand Fire Service.

Appendix C
New Zealand Fire Service National Statistics for Children's Gender

New Zealand Fire Service, Fire Awareness Intervention Programme, National Statistics Totals for Children's Gender that Fireplay/set (Fire region area and gender totals)

Fire Service Region	**Male**	**Female**
Auckland	167	36
Bay Waikato	90	6
Transalpine	226	27
Southern	30	1
Eastern	9	0
Northland	31	3
Arapawa	84	8
Western	44	4
Total	**681**	**85**

New Zealand Fire Service. (2000). *Fire Awareness Intervention Programme: National Statistics 1999-2000.* Wellington: New Zealand Fire Service.

Appendix D
New Zealand Fire Service, National Statistics for Children's Age

New Zealand Fire Service, Fire Awareness Intervention Programme, National Statistics Totals for Children's Age Range that Fireplay/set (Fire region area and age range totals)

Fire Service Region	**0-5 Years**	**6-10 Years**	**11-14 Years**	**Total**
Auckland	22	93	70	185
Bay Waikato	12	63	13	88
Transalpine	26	84	125	235
Southern	2	11	15	28
Eastern	2	3	4	9
Northland	2	16	15	33
Arapawa	5	39	34	78
Western	3	22	18	43
Total	74	331	294	699

New Zealand Fire Service. (2000). *Fire Awareness Intervention Programme: National Statistics 1999-2000.* Wellington: New Zealand Fire Service.

Appendix E
New Zealand Fire Service National Statistics for Children's Challenging Behaviour

New Zealand Fire Service, Fire Awareness Intervention Programme, National Statistics Total for Challenging Behaviour's of Children that Fireplay/set (Fire region area and behaviour)

Fire Service Region	**ADHD**	**Learning Difficulties**	**Violence Property**	**Violence Others**	**Total**
Auckland	10	17	2	2	31
Bay Waikato	4	1	0	0	5
Transalpine	29	54	9	11	103
Southern	1	2	0	1	4
Eastern	0	1	0	1	2
Northland	1	1	0	0	2
Arapawa	5	6	0	4	15
Western	3	2	11	20	36
Total	53	84	22	39	198

New Zealand Fire Service. (2000). *Fire Awareness Intervention Programme: National Statistics 1999-2000.* Wellington: New Zealand Fire Service.

Appendix F
New Zealand Fire Service National Fire Statistics for Children's Residence

New Zealand Fire Service, Fire Awareness Intervention Programme, National Statistics Total for Children's Residences that Fireplay/set (Fire region area and residence totals)

Fire Service Region	Same Sex Couple	A Parent and Partner	Both Parents	Single Parenting	Shared Custody	Total
Auckland	1	17	82	50	2	152
Bay Waikato	0	8	25	24	0	57
Transalp.	0	26	110	92	6	234
Southern	0	10	13	6	0	29
Eastern	0	0	6	1	0	7
Northland	0	11	10	12	1	34
Arapawa	6	11	34	29	0	80
Western	0	5	24	17	1	47
Total	7	88	304	231	10	640

New Zealand Fire Service. (2000). *Fire Awareness Intervention Programme: National Statistics 1999-2000.* Wellington: New Zealand Fire Service.

Appendix G
New Zealand Fire Service Transalpine Fire Region Statistics for Types of Fire

New Zealand Fire Service, Juvenile Intervention Programme, Transalpine Fire Region Statistics Total for Types of Fire that Children Fireplay/set (Fire region area and fire type totals)

Year	Rubbish	School	Scrub	Structure	Tree	Car	Total
1999-00	42	27	21	28	3	6	127

New Zealand Fire Service Transalpine Region. (2000). *Juvenile Intervention Programme Statistics.* Christchurch: New Zealand Fire Service Transalpine Region.

Appendix H
New Zealand Fire Service, National Statistics for Fire Behaviour with Peers

New Zealand Fire Service, Fire Awareness Intervention Programme, National Statistics for Children's Fireplay/setting Behaviour Involving Peers (Fire region area and numbers of incidents involving peers)

Fire Service Region	**Peers Involved in Fireplay/setting**
Auckland	102
Bay Waikato	38
Transalpine	185
Southern	18
Eastern	5
Northland	23
Arapawa	55
Western	24
Total	450

New Zealand Fire Service. (2000). *Fire Awareness Intervention Programme: National Statistics 1999-2000.* Wellington: New Zealand Fire Service.

Appendix I
New Zealand Fire Service, National Statistics for Children's Fire Motivation

New Zealand Fire Service, Fire Awareness Intervention Programme, National Statistics for Children's Motivation for Fireplay/setting (Fire region area and motivation totals)

Fire Serv.	Anger	Attention	Boredom	Experiment	Frustration	Peer pressure	Revenge	Vandalism	Total
Auckland	7	10	20	56	1	40	0	6	140
Bay Waikato	3	1	10	14	1	5	1	1	36
Transalpine	7	8	43	71	2	20	0	2	153
Southern	2	0	4	15	0	1	0	0	22
Eastern	0	0	0	5	0	1	0	0	6
Northland	0	2	5	17	2	6	0	0	32
Arapawa	4	0	23	29	0	10	1	1	68
Western	1	4	7	18	3	5	1	2	41
Total	24	25	112	225	9	88	3	12	498

New Zealand Fire Service. (2000). *Fire Awareness Intervention Programme: National Statistics 1999-2000.* Wellington: New Zealand Fire Service.

Appendix J
Primary Caregiver's Questionnaire – Community Sample

The primary caregiver's perspective of children and fire.

Are you the parent of a child aged between three and fourteen years of age?

If you answered **yes**, you are invited to participate in the above study, by completing the attached questionnaire.

The aim of this study is to identify your views of children and fire. Whether your child **has** or **has not** played with fire, is important to this study, **both** will be included.

The questionnaire is anonymous and you will not be identified as a participant of the study. You may at any time withdraw your participation, including withdrawal of any information you have provided.

By completing the questionnaire, however, it will be understood that you have consented to participate in the project, and that you consent to publication of the results of the study with the understanding that anonymity will be preserved.

Coralanne Child is carrying out this study as a requirement for the degree of Master of Arts under the supervision of Prof. Strongman, Department of Psychology, University of Canterbury. Coralanne can be contacted at Ph. 343 7780 Ext. 8227. She will be pleased to discuss any queries you may have about participation in this study.

The attached questionnaire concerns your views on your child's behaviour with fire. When you are completing this questionnaire please keep in mind one child and complete the questionnaire upon that child. Please consider your answer to each question before ticking or recording the answer that most approximates your opinion.

Please return the completed questionnaire in the attached envelope to your centre or school. C. Child will then collect the questionnaire.

Thank you for your time it is most appreciated.

Background information:

Please tick ☑ the appropriate box and/or record the details requested in the space provided (__).

Age of child: _____ Gender: ☐ Male ☐ Female

Ethnicity:

☐ NZ European ☐ Maori ☐ Asian ☐ Pacific Island
☐ Other:_____

Is your child currently taking any medications?

☐ Yes ☐ No

If **yes**, what for?_____

Please identify if your child has been diagnosed/experiences:

☐ Attention Deficit Disorder (ADD) ☐ Conduct Disorder
☐ Learning difficulties ☐ Bed wetting
☐ Attention Deficit Hyperactivity Disorder (ADHD) ☐ Truancy
☐ Other:_____

Number of siblings (brothers and sisters):

☐ Nil ☐ One ☐ Two
☐ Three ☐ Four ☐ Five or more

Birth order of your child.

☐ Only child ☐ Youngest ☐ Middle ☐ Oldest
☐ Unknown

Who is the primary caregiver?

☐ Mother ☐ Father ☐ Both ☐ Other

Primary caregiver's present marital status:

☐ Married ☐ Divorced ☐ De facto ☐ Separated
☐ Single ☐ Foster ☐ Widowed
☐ Other:_____

Who does your child currently reside with?

☐ Both parents ☐ Mother ☐ Father ☐ Grandparents
☐ Mother/Stepfather ☐ Father/Stepmother ☐ Foster parents ☐ Siblings
☐ Other:_____

Does your child get on well with other children?

☐ Yes ☐ No ☐ Unknown

Does your child get into fights more than his/her friends?

☐ Yes ☐ No ☐ Unknown

Does your child sometimes get picked on by other children?

☐ Yes ☐ No ☐ Unknown

Does your child play/stay alone rather than with other children?

☐ Yes ☐ No ☐ Unknown

Does your child make friends easily?

☐ Yes ☐ No ☐ Unknown

Questionnaire:

1. Does anyone in your home smoke?

☐ Yes ☐ No

If **yes**, how many per day:_____

2. Are you aware of the New Zealand Fire Service education programmes?

☐ Yes ☐ No

3. Has your child been taught about fire safety?

☐ Yes ☐ No ☐ Unknown

If **yes**, by whom:

☐ Preschool teachers ☐ School ☐ Fire safety officers
☐ Caregivers ☐ Other:_____

4. Please identify sources of fire that your child is familiar with:

☐ Open fire ☐ Woodburner ☐ Gas fire/heater
☐ Candles ☐ Gas hotplate/oven ☐ Barbecue
☐ Bonfires ☐ Lighters/matches ☐ Fireworks
☐ Other:_____

5. Where are matches/lighters generally kept in your home?

Please explain:_____

6. Does your child like to light matches, lighters or candles?

☐ Yes ☐ No ☐ Not permitted

7. Does your child like helping adults when they work with fire?

☐ Yes ☐ No ☐ Not permitted

8. Has your child expressed an interest/fascination in fire?

☐ Yes ☐ No

If **yes,**

8a. At what age was your child when he/she first showed an interest in fire?

_____

8b. Would you describe your child's interest in fire as:

☐ Mild ☐ Moderate ☐ Extreme

Please explain:_____

9. Please identify why you think children may consider playing with fire or fire setting:

☐ For fun ☐ Curious ☐ Boredom
☐ Get attention ☐ Destroy something ☐ Angry
☐ Hurt someone ☐ Peer pressure ☐ Experiment
☐ Showing off ☐ Other:_____

10. Are you aware of a family and/or extended family member having set a deliberate fire which did/could have led to property damage and/or injury to self or others?

☐ Yes ☐ No ☐ Unknown

11. Has your child played with matches, lighters, fire or set fires in the last twelve months?

☐ Yes ☐ No

If **no**, please go to question **29**.

If **yes**, please continue. Was this your child's first fireplay or firesetting incident?

11a. ☐ Yes ☐ No

If **no**, how many other incidents has your child been involved in, within the last twelve months?

11b. ☐ Two or less incidents ☐ Three or more incidents

Did the fireplay or firesetting cause or threaten to cause:

11c. ☐ Significant injury ☐ Property damage ☐ Both ☐ No

12. Has your child been seen by a member of the NZ Fire Service for behaviour relating to fire?

☐ Yes ☐ No ☐ Unknown

13. Thinking of the incident in question 11 please answer the following questions. What did your child set on fire?

13a. ☐ Nothing ☐ Paper products ☐ Grass/Leaves
☐ Other flammable materials ☐ Flammable liquids

13b. ☐ Own property ☐ Others property

14. Where did your child get the materials used in this incident?

14a. ☐ Home ☐ School ☐ Shops ☐ Friend
☐ Other_____

14b. ☐ Found it easily ☐ Went out of their way to acquire

15. What ignition source was used in this incident?

☐ Matches ☐ Lighter ☐ Both
☐ Unknown ☐ Other_____

16. Where and when did this fireplay or firesetting incident occur?

16a. ☐ Home ☐ School ☐ Park
☐ Other_____

16b. ☐ Indoors ☐ Outdoors
Explain:_____

16c. Month of incident
☐ January ☐ February ☐ March ☐ April ☐ May
☐ June ☐ July ☐ August ☐ September ☐ October
☐ November ☐ December ☐ Unknown

16d. Time of incident
☐ 7-9am ☐ 9-11am ☐ 11-1pm ☐ 1-3pm ☐ 3-5pm ☐ 5-7pm
☐ 7-9pm ☐ 9-11pm ☐ Other:_____

17. At the time of the incident, who provided supervision?

☐ Primary caregiver (parent) ☐ Adult sitter ☐ Youth sitter
☐ Sibling ☐ Nobody ☐ Unknown
☐ Early Childhood Centre ☐ School
☐ Other_____

18. Do you believe that this fireplay or firesetting incident was intentional or accidental?

☐ Intentional ☐ Accidental ☐ Unknown

If accidental or unknown please go to **Q.19.**

If **intentional,**

18a. Do you believe your child was attempting to harm or destroy property?

☐ Harm property ☐ Destroy property ☐ Injure a person

18b. Do you believe your child planned to set a fire or play with matches/lighter?

☐ Yes ☐ No

19. What was your child's behaviour after this fireplay or firesetting incident?

☐ Denied involvement ☐ Lied about involvement ☐ Hid
☐ Extinguished the fire ☐ Sought help ☐ Did nothing
☐ Was embarrassed ☐ Other:_____

20. This fire resulted in:

☐ No damage
☐ Minor property damage (explain)_____
☐ Extensive property damage (explain)_____
☐ Personal injury (explain)_____
☐ Other_____

21. As a result of this incident:

☐ Fire Department attended
☐ Police attended
☐ There was parental or other adult intervention
☐ Other:_____

22. Was your child with another child(ren) when this incident occurred?

☐ Yes ☐ No ☐ Unknown

If **yes**, identify who the other children were:

☐ Sibling ☐ Friend ☐ Neighbour
☐ Unknown ☐ Other:_____

23. Do you believe your child was pressured or coerced into fireplay or firesetting behaviour by peers?

☐ Yes ☐ No

24. When the fireplay/firesetting came to your attention. What was your response to your child?

☐ Punished ☐ Rewards offered for not fireplaying
☐ Threat of punishment ☐ Safer opportunities provided
☐ Other:_____

25. After you addressed your child's fireplay or firesetting did they continue to play with matches/lighters or set fires?

☐ Yes ☐ No ☐ Unknown

26. Within the last twelve months has there been an event in your child's life that could be attributed to this behaviour?

☐ Yes ☐ No ☐ Unknown

If **yes**, please specify:

☐ Family problems ☐ Moving house ☐ Death
☐ Problem at school ☐ Angry at self or another
☐ Other:_____

27. Did you approach an agency for assistance regarding the fireplay or firesetting?

☐ Yes ☐ No

If **yes**, please identify the agency contacted and support received:

☐ Fire department ☐ School ☐ Early Childhood centre
☐ Specialist Education Services ☐ Doctor
☐ Child, Youth and Family Services ☐ Parent/child helplines
☐ Other:_____

support received by the agency

☐ Written information ☐ Verbal information
☐ Professional visit ☐ Fire safety programme
☐ Counseling ☐ Referred to another service
☐ Other:_____

28. Please identify the reason(s) why you decided to seek a referral for your child's fireplay or fire setting:

☐ Fire play/fire setting increased ☐ Concern about child's wellbeing
☐ Cost of damage ☐ Seek support/assistance
☐ Other:_____

29. Please share any comments you wish to make, or information you would like to share about your child and their fireplay or firesetting behaviour.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
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_____
_____
_____
_____

Thank you for your participation.

Please return completed questionnaire in the attached addressed envelope to your centre or school. C. Child will then collect the questionnaire.

Appendix K
Document content analysis form (Transalpine Fire Region)

Document Content Analysis Form

Background information:

Age of child: _____ Gender: ☐ Male ☐ Female

Ethnicity:

☐ NZ European ☐ Maori ☐ Asian ☐ Pacific Island
☐ Other:_____

Child taking medications?

☐ Yes ☐ No

If **yes**, what for?_____

Identify if child has been diagnosed/experienced:

☐ Attention Deficit Disorder (ADD) ☐ Conduct Disorder
☐ Learning difficulties ☐ Bed wetting
☐ Attention Deficit Hyperactivity Disorder (ADHD) ☐ Truancy
☐ Other:_____

Number of siblings:

☐ Nil ☐ One ☐ Two
☐ Three ☐ Four ☐ Five or more

Birth order of child:

☐ Only child ☐ Youngest ☐ Middle ☐ Oldest
☐ Unknown

Who is the primary caregiver?

☐ Mother ☐ Father ☐ Both ☐ Other

Primary caregiver's marital status:

☐ Married ☐ Divorced ☐ De facto ☐ Separated
☐ Single ☐ Foster ☐ Widowed
☐ Other:_____

Child resides with?

☐ Both parents ☐ Mother ☐ Father ☐ Grandparents
☐ Mother/Stepfather ☐ Father/Stepmother ☐ Foster parents ☐ Siblings
☐ Other:_____

Does the child get on well with other children?

☐ Yes ☐ No ☐ Unknown

Does the child get into fights more than his or hers friends?

☐ Yes ☐ No ☐ Unknown

Does the child sometimes get picked on by other children?

☐ Yes ☐ No ☐ Unknown

Does the child play/stay alone rather than with other children?

☐ Yes ☐ No ☐ Unknown

Does the child make friends easily?

☐ Yes ☐ No ☐ Unknown

Questionnaire:

1. Does anyone in the home smoke?

☐ Yes ☐ No

If **yes**, how many per day:_____

2. Aware of the New Zealand Fire Service education programmes prior to referral?

☐ Yes ☐ No

3. Child has had education about fire safety prior to referral?

☐ Yes ☐ No ☐ Unknown

If **yes**, by whom:

☐ Preschool teachers ☐ School ☐ Fire safety officers
☐ Caregivers ☐ Other:_____

4. Identify sources of fire that child is familiar with:

☐ Open fire ☐ Woodburner ☐ Gas fire/heater
☐ Candles ☐ Gas hotplate/oven ☐ Barbecue
☐ Bonfires ☐ Lighters/matches ☐ Fireworks
☐ Other:_____

5. Where are matches/lighters generally kept in the home?

Identify:_____

6. Does the child like to light matches, lighters or candles?

☐ Yes ☐ No ☐ Not permitted

7. Does the child like helping adults when they work with fire?

☐ Yes ☐ No ☐ Not permitted

8. Has the child expressed an interest/fascination in fire?

☐ Yes ☐ No

If **yes,**

8a. At what age was your child when he/she first showed an interest in fire?

_____

8b. Describe the child's interest in fire as:

☐ Mild ☐ Moderate ☐ Extreme

Explain:_____

9. Identify why the child may consider playing with fire or fire setting:

☐ For fun ☐ Curious ☐ Boredom
☐ Get attention ☐ Destroy something ☐ Angry
☐ Hurt someone ☐ Peer pressure ☐ Experiment
☐ Showing off ☐ Other:_____

10. Is a family and/or extended family member identified as having set a fire?

☐ Yes ☐ No ☐ Unknown

11. Has the child played with matches, lighters, fire or set fires?

☐ Yes ☐ No

If **yes**, was this the child's first fireplay or firesetting incident?

11a. ☐ Yes ☐ No

If **no**, how many other incidents has the child been involved in, within the last twelve months?

11b. ☐ Two or less incidents ☐ Three or more incidents

Did the fireplay or firesetting cause or threaten to cause:

11c. ☐ Significant injury ☐ Property damage ☐ Both ☐ None

12. Has the child been seen prior to this referral by a member of the NZ Fire Service for behaviour relating to fire?

☐ Yes ☐ No ☐ Unknown

13. What did the child set on fire?

13a. ☐ Nothing ☐ Paper products ☐ Grass/Leaves

☐ Other flammable materials ☐ Flammable liquids

13b. ☐ Own property ☐ Others property

14. Where did the child get the materials used in this incident?

14a. ☐ Home ☐ School ☐ Shops ☐ Friend
☐ Other_____

14b. ☐ Found it easily ☐ Went out of their way to acquire

15. What ignition source was used in this incident?

☐ Matches ☐ Lighter ☐ Both
☐ Unknown ☐ Other_____

16. Where and when did this fireplay or firesetting incident occur?

16a. ☐ Home ☐ School ☐ Park
☐ Other_____

16b. ☐ Indoors ☐ Outdoors

Explain:_____

16c. Month of incident

☐ January ☐ February ☐ March ☐ April ☐ May
☐ June ☐ July ☐ August ☐ September ☐ October
☐ November ☐ December ☐ Unknown

16d. Time of incident

☐ 7-9am ☐ 9-11am ☐ 11-1pm ☐ 1-3pm ☐ 3-5pm ☐ 5-7pm
☐ 7-9pm ☐ 9-11pm ☐ Other:_____

17. At time of incident, who provided supervision?

☐ Primary caregiver ☐ Adult sitter ☐ Youth sitter
☐ Sibling ☐ Nobody ☐ Unknown
☐ Early Childhood Centre ☐ School
☐ Other_____

18. Does the caregiver believe that this fireplay or firesetting incident was intentional or accidental?

☐ Intentional ☐ Accidental ☐ Unknown

If **intentional,**

18a. Did the caregiver believe the child was attempting to harm or destroy property?

☐ Harm property ☐ Destroy property ☐ Injure a person

18b. Did the caregiver believe the child planned to set a fire or play with matches/lighter?

☐ Yes ☐ No

19. What was the child's behaviour after this fireplay or firesetting incident?

☐ Denied involvement ☐ Lied about involvement ☐ Hid
☐ Extinguished the fire ☐ Sought help ☐ Did nothing
☐ Was embarrassed ☐ Other:_____

20. This fire resulted in:

☐ No damage
☐ Minor property damage (explain)_____
☐ Extensive property damage (explain)_____
☐ Personal injury (explain)_____
☐ Other_____

21. As a result of this incident:

☐ Fire Department attended
☐ Police attended
☐ There was parental or other adult intervention
☐ Other:_____

22. Was the child with another child(ren) when this incident occurred?

☐ Yes ☐ No ☐ Unknown

If **yes**, identify who the other children were:

☐ Sibling ☐ Friend ☐ Neighbour
☐ Unknown ☐ Other:_____

23. Did the caregiver believe the child was pressured or coerced into fireplay or firesetting behaviour by peers?

☐ Yes ☐ No

24. When did the fireplay/firesetting come to the caregivers attention. What was their response to the child?

☐ Punished ☐ Rewards offered for not fireplaying
☐ Threat of punishment ☐ Safer opportunities provided
☐ Other:_____

25. After the caregiver addressed the child's fireplay or firesetting did they continue to play with matches/lighters or set fires?

☐ Yes ☐ No ☐ Unknown

26. Within the last twelve months has there been an event in the child's life that could be attributed to this behaviour?

☐ Yes ☐ No ☐ Unknown

If **yes**, specify:

☐ Family problems ☐ Moving house ☐ Death
☐ Problem at school ☐ Angry at self or another
☐ Other:_____

27. Did the caregiver approach an agency for assistance regarding the fireplay or firesetting?

☐ Yes ☐ No

If **yes**, identify the agency contacted and support received:

☐ Fire department ☐ School ☐ Early Childhood centre
☐ Specialist Education Services ☐ Doctor
☐ Child, Youth and Family Services ☐ Parent/child helplines
☐ Other:_____

support received by the agency

☐ Written information ☐ Verbal information
☐ Professional visit ☐ Fire safety programme
☐ Counseling ☐ Referred to another service
☐ Other:_____

28. Identify the reasons why the caregiver decided to seek a referral for the child's fireplay or fire setting:

☐ Fire play/fire setting increased ☐ Concern about child's wellbeing
☐ Cost of damage ☐ Seek support/assistance
☐ Other:_____

29. Note comments, information about the child's fireplay or firesetting behaviour not already noted.

Completed by: Date:

Appendix L

Procedural flow chart

Research Consent

University of Canterbury Human Ethics Committee

Questionnaire piloted on a sub sample, opinions elicited by the researcher.

|

Participant Recruitment

Random sampling of Early Childhood centers,
primary and intermediate schools
within Christchurch, South Island, New Zealand

| Written information sent to Early Childhood centres, primary and intermediate schools.

Fire Service Youth Liaison Officer written to requesting access and consent to analyse primary caregivers written interview records.

Phone contact made to centres, schools and Transalpine Fire Region. Respond to queries.

Data collection

Questionnaires and posters forwarded to Early Childhood centres, primary and intermediate schools

Content analysis of Fire safety Youth Liaison officers written primary caregivers interviews.

Questionnaires returned to centre or school and collected by researcher.

Data analysis

Questionnaires and document content analysis forms analysed.

Raw data destroyed

Letter of thanks sent to participating educational facilities and Transalpine Fire Region

Appendix M
Letter to educational facilities inviting participation

... June, 2000.

Mrs C. Child
Christchurch College of Education
Private Bag
Christchurch

Dear Sir, madam,

Tena koe. Nga mihi ki a koe, ki a koutou katoa.

Parents (primary caregivers) of your centre or school are invited to participate in the study: the primary caregiver's perspective of children and fire.

The aim of this descriptive study is to identify and explore primary caregiver's perspectives of social and behavioural characteristics of children who play with fire, set fires, and make comparisons with those who don't. Also, to identify demographic and fireplay/setting incidents to determine what differentiates the groups and whether children that fireplay/set are heterogeneous groups.

The project is being conducted as a requirement for the degree of Master of Arts by Coralanne Child under the supervision of Prof. Strongman, Department of Psychology, University of Canterbury. Coralanne can be contacted at Ph: 343 7780 Ext. 8227, Christchurch College of Education. She will be pleased to discuss any queries you may have about participation in this study.

The questionnaires caregivers are asked to complete are anonymous, they will not be identified and may withdraw participation at any time, including any information they may have provided.

Your centre or schools involvement would be the random selection of participants, the questionnaires being sent home with the child and being returned to the school in a sealed addressed envelope. Coralanne would then organise the questionnaires being collected from you.

I would appreciate it if I could contact you by phone in a week to discuss any queries you may have regarding this study.

Thank you for your time.

No reira, nga mihi ano ki a tatou katoa naku noa.

Coralanne Child (BA Hons, NZTMH)

Appendix N
Letter to Transalpine Fire Region Fire Safety Youth Liaison Officer

... June, 2000.

Mrs C. Child
Christchurch College of Education
Private Bag
Christchurch

Dear Mr Gibson,

Tena koe. Nga mihi ki a koe, ki a koutou katoa.

I would like to discuss and invite your participation in the study: the primary caregiver's perspective of children and fire.

The aim of this descriptive study is to identify and explore primary caregiver's perspectives of social and behavioural characteristics of children who play with fire, set fires, and make comparisons with those who don't. Also, to identify demographic and fireplay/setting incidents to determine what differentiates the groups and whether children that fireplay/set are heterogeneous groups.

The project is being conducted as a requirement for the degree of Master of Arts by Coralanne Child under the supervision of Prof. Strongman, Department of Psychology, University of Canterbury. Coralanne can be contacted at Ph: 343 7780 Ext. 8227, Christchurch College of Education. She will be pleased to discuss any queries you may have about participation in this study.

Your participation would involve the access and consent to use a maximum of fifty written records of primary caregivers interviews with Fire Safety Youth Liaison Officers. These records would be analysed by the researcher and information would be recorded onto a data analysis form. The information collected would not identify any persons. You may at any time withdraw your participation, including the withdrawal of any information provided.

I would appreciate it if I could contact you by phone in a week to discuss any queries you may have regarding this study.

Thank you for your time.

No reira, nga mihi ano ki a tatou katoa naku noa.

Coralanne Child (BA Hons, NZTMH)

Appendix O
'Wanted' poster for school or centres caregiver's notice-board

Wanted

parents of children aged between three and fourteen years.

To complete an anonymous questionnaire at home and return to your child's centre.

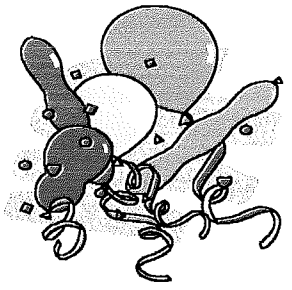
It's that easy!

Your support is appreciated.
Questionnaires available from your centre.

Appendix P
'Thank you' poster for school/centres staff notice-board

Thank You

for your support of 'Caregiver's perspective of children and fire'. Questionnaires may be completed by parents of children aged between three and fourteen years. Parents are asked to return them to the child's centre/school for collection. C. Child will arrange to collect them from you. Questionnaires, return envelopes, collection bags etc are provided. Thank you for your support, it is most appreciated.



Please feel free to contact the researcher, Coralanne Child at 343 7780 ext 8227.

Appendix Q
Facisimile message – data collection correspondence

Facsimile Message

To: Participants of the study "Caregiver's perspectives of children and fire".

From: **Coralanne Child**
Christchurch College of Education
Fax: 343 7795

Kia ora katou,

Thank you for your support!

It has been some time now since I delivered the questionnaires And I envisage that those likely to be returned have done so. As we draw close to the end of the term I would like to arrange to pick up questionnaires from you.

My intention is to collect questionnaires etc either this afternoon (Thursday) or Friday afternoon. I will approach the office in the first instance unless advised otherwise.

Thank you so much for your support! I anticipate that mid 2001 will be the first publication of my findings and as a thank you to you all, I will forward a copy for your information.

Your support is most appreciated. Please do not hesitate to contact me At 343 7780 ext 8227 should you have any queries.

Kind regards

Coralanne Child

Appendix R
Thank you letter to educational facilities

Date

Ms C. Child
Christchurch College of Education
Private Bag
Christchurch

Dear Sir, madam,

Tena koe.

Thank you for your support in the study: The primary caregiver's perspective of children and fire.

Without the support of schools/centres and families this study would not have been possible, so thank you for your assistance. I anticipate that the study findings will be published mid 2001 and as a thank you to staff and families I will forward a copy for your information at that time.

Thank you for your support and I wish you all a safe and refreshing term break.

No reira,

Coralanne Child (BA Hons, NZTMH)

Appendix S
Thank you letter to Transalpine Fire Region

Date

Ms C. Child
Christchurch College of Education
Private Bag
Christchurch

Dear Mr Gibson,

Thank you for your support in the study: The primary caregiver's perspective of children and fire.

Without the support of the Transalpine Fire Service Region this study would not have been possible, so thank you for your assistance. I anticipate that the study findings will be published mid 2001 and as a thank you to the Fire Service I will forward a copy for your information at that time.

Thank you for your support and I wish you a safe and refreshing break.

No reira,

Coralanne Child (BA Hons, NZTMH)